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ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Inflammation of the Mucous Membrane of the Stomach, in Yellow and Bilious Fevers.* By WILLIAM R. WARING, M. D., of Savannah, Georgia.

A COMMUNICATION on the effects of vesicatories and rubefacients, by Dr. DANIEL, of Savannah, Georgia, was inserted in the Journal of Medical and Physical Sciences for 1823; in which my opinions concerning the inflammatory state of the stomach in the endemic of 1820, were objected to and combated. When this paper made its appearance, I happened to be out of the country; and although some time has elapsed since my return, accident has prevented me from seeing it, until within the last fortnight. This circumstance will account for the delay in replying to it, and in defending my opinions. The author observes that he exhibited a stomach to Dr. KOLLOCK in 1822, which he (Dr. K.) acknowledged to be similar to those which I had shown to him in 1820. He then proceeds to describe the appearances of such stomachs, by the following detail; and concludes, that they are not inflammatory, but the result of venous congestion.

1st. There are red spots more or less numerous upon the villous coat, and especially about the cardia and pylorus.

2nd. Dissecting away the villous and nervous coats, the veins external to the latter are found turgid with blood, and the arteries empty.

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3d. The red spots are made up of distinct specks.

4th. Those specks are about the size of the point of a writing pen, and of irregular shape.

5th. Sometimes they are like the minute extremities of the veins, imperfectly injected with red matter.

6th. These specks are interspersed with black points.

7th. Dissecting the villous from the nervous coat, these red specks are still seen in the former.

8th. A dark bluish spot is occasionally found in the stomach, usually near the pyloric orifice, from half an inch to two inches in diameter, invariably covered with mucus approaching to the appearance of pus. In endeavouring to discover whether it was not sphacelated, he has torn the neighbouring parts, which yielded more readily than the coloured portion.

9th. He then infers that this is certainly not inflammation, but an imperfect congestion of the extreme capillary veins.

10th. As further proof that there is no inflammatory action, he adduces the condition of the liver, spleen, pancreas, brain, &c.; in which, he says, there is nothing inflammatory, because there is no exudation of coagulable lymph.

11th. He deduces an argument from the effects of remedies: bleeding, cathartics, &c. are unproductive of benefit; *Cayenne pepper*, serpentaria, and mustard, furnish relief.

12th. Yellow fever, he observes, is a loss of balance between the capillary circulation and the alimentary canal, and the rest of the sanguiferous system." "The causes operate upon the skin, and the effects are developed in the stomach." These effects are a diminution of tone in the capillaries of the surface of the body and of the stomach. The cure is to be brought about by sustaining the former, and invigorating the latter, for the purpose of equalizing the circulation.

After this exposition of the author's ideas, it must be evident without much commentary, that the deductions are by no means supported by the premises which he lays down. He finds a redness in the mucous membrane of the stomach, and attributes it to loss of tone in the veins of that membrane. It is not indeed stated, that the loss of tone is thus confined to veins exclusively, for the expression is indefinite; such, however, must be his meaning, since he adduces the emptiness of certain arteries, because of

course they had not lost their tone, and the congestion of certain veins because of course such an effect had occurred in them. These arteries and veins which he cites, are situated on the outside of the sub-mucous coat, and possess considerable calibre. The blood is collected then, according to the author, in the veins of the mucous coat, in consequence of their inability to circulate it. This is the notorious doctrine of venous congestion, tinctured with Brownism, and located in the digestive organs. There are several objections to it, which I will state in order.

1. The redness which covers the mucous membrane is owing to the capillary network which is spread over it. The vessels of this network anastomose infinitely: the blood which it contains circulates in all directions. It is received from the arteries, and when it has performed its function, it is poured again into veins. The network itself is neither arterial nor venous. It is a part of the great capillary system. *Yet it is precisely here* that the author has fixed his *venous* congestion.

2. He says that the arteries external to the nervous coat were found empty and the veins filled. It is very common to look through the peritoneal coat, and to perceive the branches of arteries void, while the branches of veins are well injected with blood. And this is the natural post-mortuary state. It is quite extraordinary to find arteries full of blood after death. A celebrated ancient anatomist even founded his theory of inflammation upon a supposed error of blood by transfusion from veins into arteries. It was the inspection of the dead body no doubt, that formerly led to the notion, that veins alone carried blood, while the arteries conveyed spirits or were aerial tubes. But the arteries and veins alluded to in the present instance, belong to the general circulation, while the circulation of the mucous coat, or the circulation of the vessels in which the *author has seated his venous congestion* is capillary. So that even admitting a venous congestion to exist in those veins, it does not follow that it must be extended to the mucous coat. Pathological anatomists constantly warn us against suspecting a diseased state of this membrane by the aspect of blood vessels beneath it. So very distinct may be their operations, that nothing from the one can be positively concluded of the other. But it is obvious that there can

be no venous congestion where the venous tissue does not exist. The capillary tissue is not venous.

The theory of venous congestion is altogether unfounded. There is no physiological proof of the possibility of such a congestion independently of arterial influence. *The blood is supposed to stagnate in the veins, because these vessels become incapable of circulating it, as rapidly as it is poured into them from the arteries. Hence arises congestion. No reason however, is generally assigned for the peculiar incapability of those veins, in which it is located, and for the congestion occurring in one part in preference to another. There is general debility, it is said, and then venous congestion. The veins of the part upon which this congestion falls are found turgid with blood by the autopsic examination.* I confess that all this is beyond my comprehension. When the heart and arteries act strongly, the veins are distended and suffer congestion; but that is not the species of congestion which is here intended. When they act feebly the veins receive only a small quantity of blood, and of course cannot be distended. There is a mechanical congestion, indeed, which is produced under certain circumstances by obstruction at the right side of the heart: but this is not indicated as venous congestion. The latter is a vital effect, according to those who advocate it. Now the veins are void of irritability; they have no contractile power such as the heart exerts; they exercise very little active agency in the circulation of the blood. If the finger be pressed upon a superficial vein, the blood will not move towards the heart; it will stagnate. There seems to be a slight elasticity in the veins, they are pressed by surrounding parts, they have the support of the capillary vessels and of the contractions of the heart and arteries; and these are the means by which they conduct the blood. Atony then can hardly be said to be applicable to them; and when they are found to be congested, it cannot be attributed to the operation of that cause. I repeat again, that it is but by a mechanical, local cause, that venous congestion can take place in a part during life. Congestions of the character indicated, that are discovered after death, are probably the results of the manner of dying, and of gravitation through anastomosing vessels. I think I might say that in ninety-nine cases out of a hundred they are the effects of these causes. But

let us suppose that the blood became checked in the veins alone of an organ; let us suppose it to be retarded in its progress, and to be accumulated in unusual quantity in those veins. The effect could not be so serious as that which occurs in yellow fever. It is extremely difficult to excite a morbid action in the common coat of a vein, and when you do excite it, it is an irritation. Alkalies, acids, and mechanical instruments may be introduced into it, without sensible consequences. Suppose again that congestion be established in the veins; the capillary circulation is impeded, the arteries continue to drive more blood into the capillary vessels, and they are distended, irritated, and inflamed. If such an obstruction be set up suddenly, the heart becomes irritated and fever is produced. But if it be set up slowly, as in certain organic affections, no fever is produced, and even the local disease does not occur. But it is obvious that a capillary congestion of this kind is strictly inflammatory, and of course totally different from the congestive state which is under consideration. Let us go still farther. Suppose the capillary vessels of the mucous coat of the stomach to sustain an atony or debility, what is the physiological consequence? It is this; they will circulate less blood, and will not suffer a congestion. Establish an atony in the capillary network that is contained in and spread over the skin. Does not the blood immediately recede from it? So far from attracting more blood or becoming congested, it does not admit even the usual quantity. The cause is, that the capillary vessels circulate their own blood chiefly, and when they refuse to circulate their due share, it is otherwise distributed by the arteries. Again, if subsequent to death the mucous membrane be found in a gorged state, and having the colour of venous blood, it does not follow, that it must be the effect of venous congestion; the dark appearance is perfectly inflammatory. For proof of this, I refer to Orfila on poisons, and to surgical writers in general. At the same time I willingly acknowledge, that such a state does not in itself precisely indicate a pre-existing irritation. It is ground sufficient, however, to induce us to suspect it. If the vena portæ be clogged, if the liver be gorged, if the vessels of the omentum be much injected, if there be some obvious obstruction, either permanent, or accidental and temporary, if in the article of death the circulation of the blood continue after respira-

tion has ceased, then that suspicion would be weakened, and only weakened. But if those conditions do not exist, then the suspicion, so far from being weakened, is greatly strengthened. Now I have many times seen the veins of the portal system otherwise than clogged, while the mucous coat was in a state of engorgement, during the prevalence of yellow fever. I have seen the liver repeatedly even void of its proper quantity of blood, being dry and pale. This observation is not peculiar to myself. The doctrine of venous congestion then appears to be untenable generally. How it should have got vogue as it has done recently in England, is very singular. The *congestive state* of typhus fever is now become a fashionable denomination for a grade of that disease. Some of the Continental pathologists entertain faith in a species of passive congestion, which is infinitely more reasonable and scientific. It is an affection of the capillary vessels, not venous nor arterial, but of the capillary vessels as belonging to one system. But even this as a proximate cause of fever I consider as altogether visionary. The idea is founded upon the dark coloured congestions which I have alluded to above, and the low state of fever which precedes death in such cases. These are certainly very inadequate evidence of passive accumulation; but as it is not my intention to go farther into this subject, I will cease to discuss it.

3. The causes of yellow fever, observes Dr. D., first paralyze the skin and then the vessels of the mucous membrane, by the association which exists between them. This is not the common effect of debilitating the capillaries of the skin. There is indeed a strong sympathy between the internal and external surfaces. But it is understood that they antagonize each other; that when the one is less excited, the other is apt to be more excited. Witness the effects of cold upon the serous and mucous membranes on the one hand, and the effects of blistering over an inflamed cavity on the other. Chilling the skin brings on pleurisy, and vesicating the skin cures it. Many cutaneous eruptions are suppressed by accident or maltreatment, and fall on the bowels; the warm bath and external irritation restores and re-establishes them. The erysipelatous affections of children, the phlegmons and ulcers that appear upon their heads, necks, and bodies, are frequently accounted beneficial, because they preserve from diar-

rhœas and dropsies. A paralyzing impression then, made upon the external surface, so far from being propagated to the mucous membrane of the stomach, ought to increase the action of its vessels, or excite them to the inflammatory state. It could not produce in them a passive congestion, nor a venous congestion, even if the venous tissue were ascertained to exist in them.

4. It is observed that yellow fever depends on "loss of balance between the capillary circulation and the alimentary canal, and the rest of the sanguiferous system." I copy this phrase verbatim, for it is evidently inexact, and I am fearful that I may not comprehend it justly. The author surely cannot mean the mechanical falling of the fluids of all kinds from the capillary system on the one hand, into the general circulation on the other. He does not mean, assuredly, that all the capillaries are included in this operation. Some carry white fluids, others carry red, and they are distributed to all parts of the living body. They are internal as well as external. And yet, is it intended to make distinctions between the capillary circulation, and that of the alimentary canal! If the author mean that debility takes place in the capillaries of the skin and the alimentary canal, which is probable from what he says of their atonic state, in another place, then in consequence of that debility, the balance of the circulation is lost. There is consequently less circulation in the capillaries of those surfaces and more in the rest of the blood vessels. While there is decreased action in the former, there is preternatural excitement in the latter. While the former contain less than their natural quantity of blood, the latter contain more. But does not such a loss of balance, and such a distribution of the blood, invalidate the idea of congestion in the mucous membrane? If the blood is to abandon the small vessels in order that it may be accumulated in the great arteries and veins, why is it found, agreeably to the statement of Dr. D., congested in the minute vessels of the stomach? Conformably to the loss of balance, those vessels should be empty. The blood ought to have deserted them and retreated into the great reservoirs toward the heart. Why too is it not found as well congested in the minute vessels of the skin? Why do we not see a passive congestion as frequently under the epidermis? Since the causes of the loss of balance are asserted to operate there in the first place, and are not asserted to annihi-

late *their tone* less than that of the vessels of the mucous membrane, it is obvious that the one being "paralyzed" as much as the others, the loss of balance affecting both in the same way, they ought to be equally subject to the appearances of a passive state. Nevertheless I am satisfied, that I have not in all my professional observations, seen half a dozen petechial cases of yellow fever. But why again, should debility in the extreme vessels produce venous congestion particularly? For even allowing it to be true, that those vessels are divided into venous and arterial tissues, there is no reason assigned, or that I can perceive, why one species of them should suffer congestion exclusively, while the debility is common to both.

5. It is remarkable, since loss of tone and consequent loss of balance affecting the capillary system at large are assigned as causes of venous congestion in the mucous coat of the stomach, that this coat should be the uniform seat of such congestion and other kinds of structure so seldom, where the capillary or extreme vessels equally abound. If the blood is merely to accumulate in the general circulatory system from weakness in the capillary vessels universally, is it not extraordinary that the effect of that weakness does not equally appear in the serous membranes, in the muscular tissue, in the spleen, &c. &c. These parts, however, are comparatively exempt; and when they are affected, it seems to be in a secondary manner. The mucous membranes are always the focus of the sanguineous accumulations. I have dissected a great number of the victims to yellow and intense bilious fevers, more, unquestionably, than any other individual in Savannah, and I have met with very few instances, in which these membranes were not morbidly altered in a greater or less degree by capillary congestion. After black vomit, the alteration of that portion of them which lines the stomach, may be said to be constant; for although there are some rare exceptions, in which it is not discovered by the post mortem inspection, the appearances are such, in conjunction with the traits of the disease, that one could not doubt that it had existed.

6. In adducing the influence of remedies to sustain the doctrine of venous congestion, the author asserts, that stimulant substances relieve, while depletion and those of a contrary character do no good in yellow fever. If he mean to say that Cayenne pepper

will cure as well as relieve, in cases of this disease after the occurrence of black vomit, then the remedy is indeed invaluable. It is almost, if not universally believed by those of extended experience, that when that event supervenes, death is usually a consequence, and that the ordinary materia medica furnishes no resource. But if he mean the higher grades of bilious fever only, then I avow, that although I have gone through all the grades of endemic disease in Savannah since 1813, with the exceptions of 1822 and 1823, up to the present time, I have never seen a single example, where the morbid impression was intense, in which stimulant medicines did good in my hands. I have employed them repeatedly, and in cases too which tempted me by their insidious exterior; but never with advantage in a curative point of view. In the milder forms of fever which intermit or remit, the remissions almost abating to distinct apyrexies, and the paroxysms presenting no compound or alarming character, tonics, especially after the lapse of a few periods, are beneficial; and that practice is certainly not new. It is inculcated in many books, and it has been for a long time the domestic manner of treating the autumnal fevers of the Atlantic sea-board in the southern states. It is the practice of the natives upon themselves. Being in some degree acclimated, their diseases are never accompanied by great irritability, and generally admit of the administration of the Peruvian bark very early. But I believe, that even moderate remittents, may be frequently made to assume symptoms of great severity by its premature employment. This medicine however, is altogether different from stimulants. The more I have seen of its use, the more am I confirmed in the opinion, that the operation of the bark is far from being understood. It stimulates very little, and indeed sometimes it does not excite heat or increase the circulation. Occasionally it even reduces the pulse by overcoming a low degree of the morbid state. Many of the best French physicians of the present enlightened period, consider it as specific in certain grades of fever, as they consider mercury specific in syphilis. Many of the older English physicians considered it thus also. This is undoubtedly an exaggerated estimate, but it does not err half so much as that, which classes it broadly in the great catalogue of stimulants. The therapeutical branch of medicine has been too much generalized.

It is founded among us, upon the metaphysical physiology of JOHN BROWN; and is evidently erroneous. Materials are heaped together that have some points of similarity indeed, but so many of dissimilarity, at the same time, that their effects are absolutely different. Bark is entitled a stimulant, and in that way it becomes associated with volatile alkali, red pepper, &c. &c. to which it bears scarcely an iota of resemblance. It is called a tonic, and in that way ranks with the salts of iron; but there is no more likeness in their operations, than between an emetic and cathartic. And what is a tonic? A substance which gives tone. And what is tone? It is an old word which has been retained in use, although its mechanical meaning has been discarded long ago. We employ it now to signify strength, vigour, &c.; and tonic substances are those which impart strength and vigour, by a direct influence which is inexplicable. When a part is diseased, and a tonic restores it to health and vigour, it is by removing the disease. But what the nature of that process is precisely, it is impossible to say. It is not mere acceleration in the action of the heart or blood-vessels; for stimulants frequently increase the disease and diminish the strength, when tonics remove it and increase the strength. I would as soon then call the bark, or the quinine preparation of it, which is much better, a febrifuge. The term is not more occult than that of tonic, and expresses the effect just as clearly; and indeed much better, since it implies something peculiar, which is not understood, but which is specifically curative in certain cases. It has moreover the additional advantage of separating it from the list of acrimonious substances with which it is frequently associated in the materia medica of some physicians, being made to furnish in this way, by the benefit it produces, an authority for their use. I believe very often it is concluded, because the bark is found to be a successful medicine, that the stimulant practice generally is to be resorted to; and thus serpentaria, volatile alkali, Cayenne pepper, &c. insinuate themselves into the course of treatment. A very interesting paper has been recently published in the island of Martinique, by M. LEFORT, physician of the King of France, upon the yellow fever of 1825, at Fort Royal, as treated by venesection and the sulphate of quinine. The observations of this gentleman tend to confirm what I have said as to the specific operation of bark, and are worthy of attention in

a practical view, by the medical men of our southern states. He says, that bleeding is useful in the first stage of the disease only; sulphate of quinine in the second. When the stomach appears to be entirely exempt from inflammatory action, and to be in a state of inertia and indolence in consequence of the previous irritation and pain of the first stage, this medicine has surpassed his expectations. He does not tell us, indeed, that it ever proved successful in a case of black vomit, though it did sometimes succeed where hematemesis existed. "*We have, says he, during six years tried a great number of stimulants (in these cases,) and the stomach has shown itself refractory to all without exception.*" "We have administered it in doses of two and a half to three grains every two or three hours, and it has retained it." "We save nearly two-thirds of our patients, (by these two remedies,) and we would save more, we venture to believe five-sixths, if they presented themselves in time." "Is it," says he, "as tonic, stimulant, revulsive, stupifiant, &c. &c. that the quinine produces its salutary effect? That effect is undeniable and certain, although it may be impossible to explain it." In speaking of the comparative advantages of this chemical preparation of the bark and the bark itself, he laments the obstinacy and blindness of those physicians who will persist in using the latter in preference to the former, notwithstanding it is well understood that it possesses its virtues without its inconveniences. "These happy results from the influence of the quinine, says he, disconcert a little some young physicians who desire to explain every thing." That is, such physicians as divide all the remedies they employ into two classes only, the stimulant and the sedative, and exclusively reject all effects except the increased or decreased activity of vessels. Such a division may be convenient to a certain degree, because the attainable object of remedies is generally nothing more than a modification of the obvious vital actions; nothing more than to actuate or to quiet. But as it must be admitted that in the diseased state there is not only alteration in the actions of the fibre, but some intimate unknown alteration in the fibre itself, of which that alteration of actions is but a consequence and an evidence, and not the essence of the disease, it follows of course that an agent may operate upon this unknown alteration in an inexplicable manner, so as to remove or aggravate the morbid injury. Before specific effects are

discarded altogether and exclusively, it is necessary to show that the common evidences of morbid alteration, such as occur in irritation for example, are not mere symptoms, but the primitive morbid alteration itself; which could not be pretended. Almost all the medicines which we employ have something peculiar about them, and produce, beside increased or decreased action, some secret results. Why does the blistering fly influence the neck of the bladder and not the brain? Why should opium stimulate the brain and not the neck of the bladder? Why does antimonial tartar, thrown into a vein, produce vomiting and not stupor? Why do the causes of numerous diseases produce their peculiar diseases and not others? Why does not the cause of measles generate a small pox or a yellow fever? Such instances of specific action are infinite in pathology. There never could be any thing more extravagant, perhaps, than the ultra simplification of the materia medica into stimulant and sedative, which is generally adopted. It is contrary to innumerable facts. Before we can understand the profound effects of agents upon the living fibre, it is necessary to know much more of its nature than we do. We have no means of penetrating farther than the efforts which it makes. The character of the changes which take place beyond this point are inscrutable. For the same reason, however, that some agents are enabled to produce in it secret changes which are morbid, others may produce counter impressions and restore it to its original state of soundness. Hence it is preposterous to deny the possible existence of specifics. The number of such medicines known may indeed be very few; yet those few, nevertheless, certainly exist, although it may require prudence and attention to the state of the irritability, in order to administer them successfully. Thus M. Lefort cannot be deemed empirical, in sustaining the secret alterative influence of quinine in a peculiar grade of fever which he describes.

7. Since 1820 there has not been a single severe endemic in Savannah. Mild fevers have prevailed in summer and autumn, sometimes remittent, but generally intermittent. Circumstances of different kinds have moderated the causes of disease, and this latter has been ameliorated conformably to the force of the causes. We are all of us observers of the great revolution that has taken place in our climate, and the comparative salubrity which has re-

sulted from it. Experiments made under such circumstances, are doubtless very ill suited to test the character, or to institute a proper mode of treatment, of the malady which ravaged our city in the year 1820. Endemic and Epidemic diseases undergo various changes from year to year, both in degree and form; and demand, accordingly, variations in the method of managing them. They are like a common ulcer, which the intelligent surgeon finds it necessary to treat differently from day to day. He applies a caustic perhaps in the first instance, then a mineral acid, then a preparation of copper, and finally perhaps he covers it with a simple ointment of sweet oil and wax, agreeably to the numerous changes that it assumes. Each application is important in its right place, and it would be very bad logic indeed, to denounce any one of them because it did not fulfil the functions of all and prove useful at every stage. Thus it seems to me to be equally contrary to the rules of good reason to conclude, that because tonics are efficient in subduing the moderate intermittent and remittent fevers which have prevailed of late years, they are consequently well adapted to the treatment of the pestilential diseases which preceded them. The cases are as dissimilar as they can well be imagined to be.

8. If the author allude in his remarks on the effects of remedies, to the higher grades of bilious fever, as well as to that grade which is admitted on all hands to be yellow fever, then I have no hesitation in asserting, that the only great means of overcoming them, consists in the various means of depletion and revulsion, according to the various states in which it appears. It is not expedient that I should enter into a reasoned detail, to demonstrate this truth. It accords with the experience of a vast majority of the intelligent physicians of this country, and amounts to established fact. During the last war I held a commission in the army of the United States, which furnished me with ample opportunities for observation in the fevers produced by marsh exhalations; since that period, an extensive private practice in fever of the same character, has afforded me additional opportunities of information, and I have no doubt whatever in relation to it. I have quartered in a hospital of soldiers labouring under all the numerous forms and degrees of fever; not a dose of medicine has been prescribed, in important cases, which I did not see ad-

ministered, so that the evacuant and sedative experiment has been complete. Placed in such a field, where no limits are set up to the will of the physician, and where the violence of disease unceasingly urges to right treatment, it is difficult to imagine, that my theoretical prejudices should not give way, or that my ignorance should not be enlightened from the destruction I was committing, if it had been real. Venesection, arteriotomy, cathartics, and enemas—the alterative use of mercury, under certain circumstances—rubefacients and blisters—the cold and warm baths—the Hippocratic method of doing nothing when nothing is to be done—such was in fact the method I found most successful. It failed in black vomit, and so has every thing. In 1824 and 1825, I added the sulphate of quinine to this list, because the cases called for it. But in many powerful sporadic instances of remittent, even in these seasons, it was inadmissible. Not that its employment would have induced a fatal termination of the disease, but because it would have aggravated it, and made the recovery of the patient more difficult. For, indeed, these instances of bilious remittent fever were such, that the undisturbed efforts of the constitution generally sufficed to conquer them. In 1825 I have selected one of the most formidable among them for experiment, and have cured it by an infusion of senna leaves with Epsom salts exhibited daily; the morbid character giving way by gradual ameliorations corresponding to the operation of the medicine. In 1824 I have selected them for the expectant inert treatment; and, although the sufferings of the patients were greater, and the event probably procrastinated a few days, it was nevertheless equally happy. Blood-letting is useful in all seasons, but much more useful in some than in others, and in the early than in the latter months. It is adapted to a particular state of the general circulation only. In 1817 that precise species of circulation prevailed throughout June and July; and nothing could be more decided than the benefit which was derived from it. If the good effect of any remedy can be positively proved from the test of mere experiment, it is this; for if it produce amendment, it generally does so promptly and obviously.

9. A description is presented to us by Dr. D. of stomachs which he examined in 1822, and which he asserts on the authority of a

gentleman now dead, to have been similar to those, which I examined in 1820. As I examined a great number and great variety of the subjects that sunk under the destructive endemic disease of that year, and as I found the stomach more or less altered in all cases, it is possible that I might have submitted to the inspection of Dr. KOLLOCK, some specimens in which the morbid vestiges were only slightly and partially traced. Certainly the description furnished in this communication, of the stomachs of 1822, does not correspond to the stomachs of 1820. And how should it? Would it not amount to a miracle if it did? The cause did not exist; the climate was comparatively pure in 1822. Do the bilious fevers of Philadelphia at this moment, (1826,) produce such ravages in the organs, as the great endemic of 1793? The author speaks of red spots chiefly about the orifices, in the cases which he saw; in a great majority of the cases which I saw, the whole mucous membrane was injected, and had been the fountain of copious hæmatemesis or black vomit; the capillary net-work was so replete with blood, that although I employed a microscopic glass, it was frequently impossible to distinguish divisions or vessels. The redness thus diffused was generally most accumulated about the orifices, and least over the remaining part of the surface; in the former case, frequently presenting the colour of violets, from the density of the engorgement, and in the latter, a colour approaching to that of arterial blood, from its thinness. It was sometimes more florid in one stomach than it was in others, and more or less florid in different stomachs. I have seen the whole mucous coat covered with spots of half the size of a pea perhaps, of a deep red hue, while the intervals were filled up with a florid colouring. Its texture was sometimes injured and softened. I have frequently, in cases where the injection was not too much condensed, distinguished the capillary vessels with the glass. The exudation of mucus was occasionally treble the normal quantity. I saw but one case of ulceration. From much recent investigation in France, it does not appear that the mucous membrane of the stomach is very liable to this sort of lesion. But Dr. D. saw it, in 1822, spotted in red, chiefly about the orifices, the red spots irregular in their shape, with black specks or points, and presenting the appearance of the minute extremities of veins very imperfectly injected. Indeed! is it

possible to distinguish a vein in the reticular arrangement of the capillaries of the mucous membrane? And again to distinguish the extremity of it; and after all, to distinguish that extremity imperfectly injected? I have not a shadow of doubt about the correctness of the writer's statement. It was his impression, and thus far he commands all my faith. But is it not possible that he was deceived? Every man, all of us are sanguine in the pursuit of our theories. The stomachs of 1822 did exhibit the aspect which he describes, but he will pardon me, in two particulars, if I do not feel able to go as far as he does; first, in the conviction that those stomachs were similarly affected with those of 1820, and second, that it is practicable to distinguish capillary veins in the mucous membranes.

10. After thus picturing the appearance of the stomachs of 1822, and identifying it with that which is produced in yellow fever, he draws his deduction by asserting, that "this *certainly* is not inflammation, but an imperfect congestion," &c. Red spots, specks, and black points! If indeed these are not positive evidences of inflammatory alteration, they are clearly not conclusive proof to the contrary. Are they enough to demonstrate venous congestion *beyond doubt?* I confess for myself they are not irresistibly convincing. He asks for traces of inflammation, and when he does so, it is with reference not merely to the stomachs of 1822, but to the stomachs which have sustained injuries from genuine and unquestionable yellow fever. Those I have found were as follows: 1st, The mucous coat is sometimes found ulcerated. 2nd, It is covered with an extraordinary quantity of mucus. This has been observed by others as well as myself. The author himself furnishes one fact, viz. the dark bluish spot covered with mucus, of an appearance approaching almost to that of pus. Venous congestion could not produce a matter similar to this; an increased deposit of mucus upon a membrane, being an index of irritation. A diminution in the quantity of the mucus, a change in its quality, are so also. 3d, The membrane is sometimes abraded, as if by poison immediately applied. 4th, It is inflamed in some parts and gangrened in others, of the same viscus. 5th, All the coats are occasionally found in a softened state. These facts are reported by the highest authorities. They are terrible, but indubitable proofs of extreme inflammation. There is no room to

discredit them, or even to stigmatize them with a character of extravagance. The yellow fever of the West Indies, in which gangrene is said to seize the stomach, is a much more deadly disease than that which visited Savannah in 1822, and I am disposed to think, than that of 1820. The causes are all more intense. The heats are more powerful and more durable, the rains more abundant at the same epoch with the heats, the vegetation is as rank as it is any where else, irritability of the stomach greater as an effect of greater heat, and the predisposition more easily roused to excitements. It would therefore legitimately, follow, as a necessary consequence, that morbid impressions should be deeper and more indelible; and it would be an anomaly if it occurred otherwise. Causes and effects in medicine are like causes and effects throughout the rest of nature. They accord in the same manner. No wonder then that the stomachs of 1822, which are adduced by Dr. DANIELL as specimens of the non-inflammatory state, should have exhibited fewer of the post-mortuary remnants of inflammation, than those in the vehement malady of 1820. No wonder that the evidence should have been less decided and the conviction less complete. For notwithstanding how thorough may be our opinions of the identity of yellow fever, remittent fever, and intermittent fever, it is nevertheless certain, that their grades of pathological derangement are separated by such wide intervals, that the organic alterations and the medical treatment, approach to specific differences.

11. Yellow fever is a disease of the mucous membranes peculiarly. But all morbid lesions, when they arrive at a certain point of violence, tend to produce secondary affections. Thus, in this, the other tissues frequently participate also, and exhibit, after death, the traces of inflammation; and our author is justifiable in demanding them, as necessary evidence of the nature of the disease which gives rise to them. He consequently asks where they are? and I am very fortunate in having it in my power to cite them; not upon my own, but upon much better authority. Hear what BANCROFT says. When the affection of the head has formed the principal feature of the disorder, the integuments of the brain have been found generally more or less inflamed. The vessels of the dura mater and pia mater were not unfrequently observed turgid with blood; in some cases the integuments have been so

firmly *attached to each other* and to the brain, that in attempting to raise or separate them, a part of the substance of the brain has been torn up. The ventricles contained usually water of a yellow colour, and were in some cases quite filled with it. Dickinson says, an examination, post mortem, exhibits unequivocal vestiges of previous inflammation. In the brain increased vascularity and deep redness of the membranes, rupture of the vessels, *adhesion* of the *hemispheres* and *membranes*, *coagulable lymph*, extravasated blood, serous effusion. Need I exhibit more authority? More could be exhibited if it were required.

12. The symptoms during life, in conjunction with the appearances after death, are additional and complete evidence of the inflammatory action. There is burning and pain in the stomach,—the pain being sometimes excruciating; excessive tenderness and soreness, or intolerable agony under the pressure of the hand at the epigastrium; great irritability and tendency to vomit when any thing is swallowed, but particularly stimulant substances generally. It is said that Cayenne pepper relieves that symptom. I tried it in 1820 without success; yet I am not disposed to dispute its effects in 1822, when yellow fever strictly speaking, did not exist. All acrimonious medicines which were administered by myself, or under my observation, appeared to me to aggravate and not to tranquillize. But it is not at all impossible, that an infusion of pepper may sometimes suspend vomiting, and relieve the distressing sensations which attend it. It may do that without contributing in the most minute degree to conquer the irritation which gives rise to it. Nausea and vomiting are sympathetic affections of the nervous system and of certain muscles. They result from irritations of the mucous membrane very frequently; but they are not seldom produced by the disease of organs remote from the stomach. The inflammation of the mucous membranes is not, then, inseparably united with them. Hence it is, that remedies are sometimes administered for the purpose of suppressing them, as troublesome or pernicious secondary affections, which so far from being designed to cure the disease itself, are known to aggravate it. But it is a balancing between evils, the injury done on the one hand, and the injury removed on the other. And the practitioner ought to be very sure, that the mischief done by himself shall not exceed that which he re-

medies, and thus the evil overbalance the good. It is upon this principle that opium is often administered in bilious fever; not to cure, but to remove a potent cause of irritation, and an obstacle to the cure. I have seen it combined with calomel, to give the latter access to the salivary glands, and have used it considerably myself in this way. But it is some time since I laid it aside entirely, under the conviction, that the compensation was not equivalent to its bad effect. Opium is frequently given upon the same principle to obtund pain. But it is one thing to vanquish pain, and another to heal the morbid lesion which produces it. The one attaches itself to the animal sensibility, while the other is a quality of the organic. An anodyne will suspend the pain of the side in pleurisy, but it is not given to cure pleurisy itself. Hence it is obvious, that although Cayenne pepper may relieve in certain cases of vomiting, it is by no means demonstrated that it removes the morbid affection, or even that it does not aggravate it. As to black vomiting, I suspect that neither that nor any thing else can prove efficient in it. The author does not positively assert that it does, at least I do not understand him so; he will, therefore, allow me to be sceptical. The symptoms of gastric irritation being such as I have enumerated, are chiefly similar to those which appear in irritations at the surface of the body, where the discoloration or disorganization is associated with them under the eye. But, is it possible to doubt its existence, even if it were doubtful before, when in like manner it is brought under the inspection immediately after death? What difference does it make whether these organic alterations be seen antecedent or subsequent to that event? They are as certain, and to the morbid anatomist, as well characterized, in the one case as in the other. When pain, preternatural sensibility, and a sense of heat, are joined with a red injection of the superficial capillaries of the skin, do we call it venous congestion? It is called erysipelas,—an inflammatory disease. When these accidents occur in the mucous membrane of the stomach, there is no reason under the sun that I can perceive, why the affection of which they are the characteristics should be called venous congestion, and not inflammatory also.

13. One of the prominent causes of mistake in regard to disease of the mucous membranes, consists in confining the attention and the judgment to the gradations of colour, without regard to

the texture. Lallemand of Montpellier, and others, but chiefly the former, have demonstrated, that one of the effects of inflammatory action is a softening of the animal fibre. It reduces the solidity of parts, and renders them more easy to rupture. This state is probably produced by inordinate influx of fluids, tension of vessels, and violent commotion. The aggregate affinities are broken, and the whole structure is altered after a manner which cannot be explained, without a better knowledge of the intimate nature of animal matter. It assumes various aspects according to circumstances. When it is chronically affected, as in certain cases of gastritis, it does not present a florid appearance,—the capillaries not appearing to contain much blood. I have seen a remarkable instance of this in the early part of the present year (1826.) The mucous membrane was so much dissolved, that it could be removed by the thumb nail, without the least difficulty. Many similar cases are recorded in the Archives Generales de Medecine by Louis, which were collected at the hospital La Charité. This writer, who details the particulars of chronic cases only, asserts that the colour is immaterial, and does not furnish a criterion of the extent of the lesion. Scoutetten, of Lille, speaks of this effect of inflammation also. The colour, he observes, varies from a dirty white, to the gray, and red, like the lees of wine. Sometimes it is blue, and at others brown. The membrane in these cases is often subject to erosions. The disorganization seems to be so gradually operated, that the red colour may not be intense at any time; and when the softening is much advanced, the vessels are too feeble to accumulate a great quantity of blood. Hence it happens, that when the dissolution is most complete, the paleness is greatest. The colouring being really inversely as the disorganization. When this inflammatory softening is more abrupt, the redness is florid or livid, as in certain cases of yellow fever. Bancroft says that, in some instances, almost the whole inner surface of the stomach was inflamed, and very often portions of the villous coat were abraded, not unfrequently observed floating among the contents of that viscus. So Pinckard also observes, that he detected a spot livid, and so much softened, that he thrust his finger through it without difficulty. When the softening is carried still farther by a more precipitated process, then it falls within the limits of gangrene. As

for instance, DEVEZE remarks, that he found in the early part of the season of 1793, in Philadelphia, the mucous coat inflamed and red only; but in the latter part, when the disease had attained greater severity, the membrane was found in a gangrenous state and partially destroyed. Cases of high bilious fever, among us, particularly when they occur in European constitutions, frequently present the whole surface of the stomach, from one orifice to the other, in a florid or livid state without much softening. These fevers are much less rapid than those which Mr. DEVEZE has depicted, or than those which BANCROFT and PINCKARD describe, continuing their course to twice or thrice their duration. They do not appear to be violent enough to break down the tissue at once in a similar manner, though they produce in the mucous membrane, an alteration of colour very often equally intense. A comparison between the membranes impressed with these two states of inflammation, exhibits nearly the same varieties and depth of complexion, but a vast difference in the condition of the texture. The injection of the capillaries and the force of the irritation, appear then to accord in a limited degree only. So that it would be difficult, nay, altogether impracticable, to determine the intensity of the disease by the colour alone. It is very possible therefore to find the mucous membrane in a red, brown, or even a livid state, as did Dr. DANIELL in a case which he adduces, and yet preserving very nearly its tenacity or natural firmness. The livid or dark colour is consistent with both inflammatory action and considerable strength of texture. But I am going much beyond the bounds which I had prescribed to myself. I will only make a few more remarks on depleting remedies, and then bring this paper to its conclusion.

14. The depleting or tranquillizing system of practice appears to me, as I have already said, to be pre-eminently adapted to the cure of remittent fever in Savannah; not according to any fixed routine, nor to any precise extent, but proportioned and suited to the circumstances of the case. There is nothing more indefinite than our meaning of stimulant and sedative. These words are constantly in our lips without a mutual intelligence of their signification, and very often, I have no doubt, without any fixed signification for our own use. This remark is so well founded, that when I hear an individual denouncing the anti-stimulant treatment

of fever, in general terms, because he has not been successful in the use of it, he does not gain an inch in shaking my faith in it. I require him to state the precise condition of the patient, and the sort and method of depletion, as well as its extent. If he administer a medicine, I require him to state its name, its dose, its form of exhibition, the intervals of the doses, and whether it be given indiscriminately throughout the paroxysms and remissions, or only during the one or the other. For there is as much difference between the effects of depletion in the hands of different practitioners, as there is between the effects of stimulants and sedatives. It is not enough to say I have depleted and failed, or that I have stimulated and succeeded. For depletions clumsily used, may be more destructive than stimulants cautiously administered; and yet, after all, the depletion be proper, and the stimulants inappropriate. One gives his patient a drastic cathartic, while another would give a laxative only, or even refrain from giving any thing. One evacuates during the paroxysm, another during the remission, and another again goes on blundering with his evacuations through both. One takes away sixteen ounces of blood, another six ounces only.* One takes the case entirely out of the hands of

* The manner in which bleeding is performed every where in our country, is exceedingly careless. The majority of physicians, I think, have a certain fixed amount in their mind, which they always govern themselves by when they determine that an evacuation of blood is proper. Some distinguished writers even lay down the quantity which is to be considered a large bleeding, and that which is to be considered a small one. In many places the physicians themselves scarcely have the ability to bleed. They have the habit of resorting to a bleeder; and very often prescribe to the patient the number of ounces of blood he is to lose, and go away without seeing it done. When a general epidemic prevails, if the medical attendant do not use the lancet himself, he is obliged to pursue this course, for his time will not allow him to wait ten or fifteen minutes or longer, until the bleeder can be brought. The consequences of this practice are evidently most pernicious. No man, in a case of serious fever, can know the exact quantity of blood that ought to be taken away, by a mere examination of the symptoms. He must first make the experiment. It is frequently impossible to know even whether bleeding be proper until the operation has been performed. The state of the pulse is the principal criterion. But that is often oppressed, and indicates debility when it does not exist, and is sometimes vigorous and indicates strength, when the patient is destitute of stamina. Thousands of lives are probably cut off by this abuse of rashly

the constitutional power, and such are not uncommon, while another more sanguine in the efficacy of that power, trusts to it altogether. One considers the disease as settled in the capillary vessels of an organ, while another considers it as belonging to the sanguiferous system generally; and thus, while the one aims all his efforts at a part, the other cares nothing about the local affection, and diffuses his attention to all the blood-vessels. What can be more different than the practice of Dr. Rush and that of Mr. Broussais? What can be more different than their medicinal agents? Yet both claim to treat fevers chiefly by depletion. They all deplete. But in a critical case, a case in which nature happens not to be sufficiently energetic to combat both physician and disease, it is beyond question, that while the conduct of one might succeed in overcoming the morbid condition, that of the other would aggravate it and destroy the patient.

15. During the prevalence of a sweeping endemic, it is very curious to hear some physicians proclaiming their constant successes with the evacuant remedies, while others confess their disappointments and failures. Indeed there is nothing more difficult than to manage them properly, and to graduate them aright. It requires a tact which no book but that of experience can teach; and even that is not sufficient without natural sagacity, and the talent of minute observation. A rash and impatient man despises the slow operations of nature in all cases without distinction; his precipitating imagination induces him frequently to wrest the disease altogether from her hand, when no other hand but hers can cure. The judicious interfere only when nature is feeble and erring. Fevers must pass through certain stages of rise and decline. All great practitioners have been obliged to pay regard to them. He who evacuates without allowance for such constitutional operations, in grave diseases of the febrile character, with the design of cutting down and extinguishing the malady at a single blow, prostrates the patient without rendering him any benefit. I shall never forget my early experience on this point of practice. All young men fancy that the science is all, and that

directing the amount of blood which shall be drawn in critical cases of disease, and by the employment of bleeders. It is one of the causes of the discredit into which the antiphlogistic treatment sometimes falls.

nature is to be forced and not indulged or guided. Age seldom fails to correct that folly, and to show how destructive art becomes when its weakness is not well understood, and when it is thrust in unceasingly to disturb or cripple the salutary efforts of the preservative principles of the body. He who reduces intemperate excitement when it exists, within certain bounds, fulfils his office when he stops there. If he continue to reduce it, in the expectation of crushing the disease by reducing it, he exceeds his function and encroaches on that of nature. Thus, in the eruptive contagions, as small pox or measles, where the virulence of the virus does not vary a great deal, there are certain symptoms followed by an inflammatory affection of the skin. An attempt to lop off the cutaneous stage of one of these diseases by free depletions, would be preposterous at least, if not prejudicial and destructive. All that the physician can do, or ought to do, is to moderate excessive tumult in the irritation of important organs, when it occurs, and then to permit the case to run through its stages without vain efforts to curtail it. The small pox can be tempered frequently into a mild disease; but it cannot be suddenly stopped in its career without unfortunate consequences. Whether it be owing to the poison itself, or the impression which it produces, may be difficult to determine; but it is clear that, the morbid affection being implanted, a certain process of constitutional movements becomes necessary to remove it, over which we have no control, except that of limiting and directing to more or less extent. We can modify to a certain degree, but we cannot annihilate without ruin to the patient. By antiphlogistic measures, as cool air, vegetable diet, &c. &c. it may be in our power to diminish the excitement of the fever, and the quantity or depth of the eruption, but not to prevent its appearance. Now I cannot see why the same principle should not prevail in remittent and continued fevers, which are produced also by a poison of a peculiar species. An injury appears to be inflicted upon one or more organs, upon the mucous membranes probably. What the secret nature of that injury is, we do not understand. It indicates its existence, however, by what we call inflammation—heat, redness, increased sensibility, &c. in the part, and secondarily in some other organs; precisely as the small pox does. It is usual to call it a mere vital lesion, and not an organic one; but no satisfactory

reason has ever been given why it should not be considered organic also. It is doubtless an alteration of structure from the sound state; and that places it in the same rank with the organic lesions, although the alteration in these may be much greater. Thus a part inflamed stands on the footing of a part wounded, which sustains a solution of continuity. The physician is able sometimes to place it in condition to repair the injury which it suffers, but he is not able to repair it himself. That must be effected by the restorative power which is intrinsic in the constitution. Hence we observe, that when a contusion is inflicted upon the external surface of the body, an inflammation is immediately established for the purpose of curing it, and every surgeon knows that the part will not recover its soundness without it. This inflammation is allowed to exist and countenanced, until the integrity of the part is restored to it: it is perceived to pass through ascending and descending gradations, until the event takes place; and no judicious person will attempt to arrest them, although he might properly moderate their excesses. The course of gradations which are incident to an inflammation brought on in this manner, lasts through a longer or shorter time, according to the irritability of the part, and the power of the agent which induces it; so that the duration of an inflammation is always uncertain, and is proportioned to these circumstances. It is in consequence of these laws of the animal economy, which are exemplified under the eye, in the instances here adduced, that remittent and continued fevers have various specific durations in different seasons, and in different periods of the same season. And it is very remarkable sometimes to see how constant at a particular moment nature appears to be in conforming to her rule. In yellow fever, for instance, the disease will be found in a hundred cases at the same time, to run through an equal number of days. A uniform impulse seems to be given, and a uniform movement to be produced, as in mechanics. The mucous membranes are inflamed in a uniform degree, the inflammation runs through its gradations, and terminates in conformity with that degree. The symptomatic fever which accompanies, and is the consequence of it, pursues a corresponding course, and terminates at length, when the membranous inflammation terminates, very frequently by what is called a critical struggle and discharge. This is the

foundation of the doctrine of critical days; which probably meant no more originally than the duration of a disease, agreeably to the extent of the injury. Thus gradations in fever seem to be necessary and inevitable, and the physician who determines to succeed with his depletions, must recognise them. If he proceed without that knowledge, he will destroy where the constitution is not strong enough to put him at defiance.

17. The ancients, at the head of whom was HIPPOCRATES, explained every thing by the theory of the humoral pathology. They conceived that a sort of concoction took place in the fluids, and that when the morbid virus had been separated from them by that means, it was eliminated by a crisis or effort. The concoction and crisis, although fancifully expatiated upon afterwards, were, in the first instance, founded upon observation. They constituted a method for explaining what was seen to occur. In well marked cases of fevers, it was remarked that evacuant remedies could not be used at certain times with so much advantage as at others, and at certain other times, they could not be used with safety. Generally, the period preferred for evacuation, was after the concoction was completed. These ideas may have been pushed too far; much beyond the legitimate boundary no doubt; but such a matter of fact man as HIPPOCRATES would scarcely have refrained from interfering in certain tumults of the system, if experience had not taught him that they were useful, or that it did no good to suppress them. The basis of this reliance upon the vis medicatrix, and of restriction upon medical applications, was most probably correct; though imaginary speculations subsequently introduced errors. A fever, said the ancients, is necessary; and why? because we observe that if you cut down that apparent effervescence which constitutes it, the patient suffers. You may moderate it, but you cannot extinguish it suddenly with impunity. It is a struggle which nature makes to deliver herself from a cause which threatens her existence. Here an important fact is stated, independently of the metaphorical rationale which is attached to it. In fevers, the febrile tumult is necessary for the cure. For my own part, I do not hesitate to admit the truth of this assertion, although it is now fashionable to deny it. A fever is a revulsive effort made by the heart and other organs, to relieve the mucous membranes, which the symptoms and the dissections

prove to be the primitive seat of the disease. The heart sympathises and becomes more active, the liver is excited and secretes a greater quantity of bile, the brain is irritated and becomes painful, the skin and its capillaries grow hot and circulate a greater share of blood than usual. The most distressing part of a paroxysm of fever is that flux and reflux of hot and cold sensations, which precedes the establishment of the hot fit. Until this takes place, the patient is frequently harassed and agitated to madness. He cannot remain in the same posture one minute. But as soon as the heart, the brain, the skin, &c. participate in the morbid excitement, it becomes proportionably diminished in the mucous membranes of the stomach, &c. and he acquires a great degree of tranquillity, or even falls asleep. I view, therefore, the affection of these organs as so many natural diversions, or revulsions, set up by nature for the purpose of saving from destruction the part originally attacked. Indeed, there can scarcely be a doubt, that the vital principle would be entirely extinguished in the species of cold fit which I have just alluded to, if these sympathetic irritations did not ensue. There is, in fact, an example of this in those cases of endemic fever, where the patient is prostrated, becomes cold over the whole surface of the body, and dies in the first paroxysm. Death is thus brought on in consequence of the want of fever, or the secondary irritations of the heart, skin, brain, liver, &c. They are the natural rubefacients, which are instituted by the preservative power of the body, for the purpose of enabling the organs to aid each other, when labouring under disease. These secondary affections are of such high importance, that, when they are established in a fit degree, they are to be considered as remedies, and cherished. When they are too much weakened by excessive or ill-timed depletion, intermittents are converted into remittents, and remittents into continued fevers. Every practitioner must have witnessed the procrastination of a period of fever beyond its usual time by a profuse bleeding; the sweating, remission, and other symptoms of alleviation, have been deferred, and the disease, instead of having been reduced, has been aggravated. Sometimes the patient sinks into what is denominated the typhous state, and the periodical amelioration never re-appears. The heart, the capillaries of the external surface, the liver, &c. are so immediately and exces-

sively depleted, that those organs have no longer sufficient power to maintain the revulsive diversions, and a consequent concentration of disease takes place in the mucous membranes primitively assailed. In circumstances such as these, (which constitute, by the way, a genuine typhus,) nothing saves the patient but reinvigorated contractions of the heart, restored circulation in the skin, copious secretions of bile from the liver, &c., the development of the pulse at the wrist, and indeed the general renewal of the secondary irritations. The return of these states resuscitates him instantly, and not rarely rescues him from destruction. But, as it is common to do in cases of this kind, they are not to be re-established by stimulating the mucous membranes with alcohol or acrimonious substances, which redouble the concentration of excitement already produced in them. It is the business of art, to restore them; but not by that channel and by such means. Rubefacients and blisters to the abdomen and the extremities, emollient injections, small doses of castor oil, for the sole purpose of removing fœcal irritants, lubricating and cooling drinks, barley decoction for food, are the most successful means which I have employed. There are many cases, in which even the oil and injections should be laid aside, and nothing exhibited internally but the drinks. I have seen great numbers of these cases conquered without medicine. Nature, undisturbed by the physician, has rallied, the heart has been perceived gradually to become more active, the warmth and circulation of the skin to be restored, the mucous membranes to become less irritated, in proportion as the secondary affections were reinstated, and the patient thus elevated from his depressed condition, without a stimulant of any sort having been swallowed. No one can conceive how efficient are the native energies of the constitution, under these circumstances, who has not frequently trusted them and witnessed such cases.

18. Where the secondary affections are feeble, and the concentration of irritation extreme in the mucous membranes, yellow fever takes place. It is a disease of the capillary system, and bleeding from the general circulation, as well as copious depletion of any kind, generally prove destructive. The secondary affections are annihilated, and the stomach overwhelmed. External irritation, diluent drinks, and mild evacuants, are the proper means to remove this state of things. I have no experience in

the effects of capillary depletion myself, but I have no doubt of its preference to depletion from the system at large. It does not operate upon the heart so much, and is likely to operate much more by capillary sympathy upon the part diseased; for an increased activity of and exhalation from the external capillaries, as must occur under topical blood-letting, would be probably attended by a decreased activity of the internal capillaries, and of course by a reduction of the disease. There are some very interesting facts contained in Broussais' Annales de la Medecine Physiologique for 1823 and 1825, volumes 4th and 7th, which confirm these speculations.

The first are furnished in a statement of the symptoms and treatment of yellow fever at Port du Passage, in September, 1823, by E. L. Jourdain, military physician in chief at the hospital of Dax. The author found general bleedings fatal; vomits aggravated the disease; stimulant injections produced the same bad effect. Leeches applied to the epigastrium in great numbers, at the beginning, oils, particularly the oil of almonds and mucilaginous drinks administered internally, mild injections, blisters and sinapisms at the *end of the second period* of the disease, were the remedies which he found most useful. The deaths were 24 of 85 seized with the disease. The second are furnished by Don J. A. Ferran, a respectable physician at Xeres, in a statement which he drew up for a public purpose, in relation to the yellow fever of 1820 and 1821, at that place. The author asserts, that of 37 patients he cured 34; that in 1820, according to the old method of treatment, (stimulant,) 35 out of a hundred, and in 1821, 50 out of a hundred died, and that according to the new or antiphlogistic method, 5 only out of a hundred died. His remedies consist in local bleeding according to the need, diluent drinks of gum or acid, and taken temperate, light diet, sinapisms often repeated upon the extremities, mild injections, fomentations to the abdomen. This statement, by Dr. Ferran, was communicated for the use of the Journal, by Dr. Chervin; who came to Savannah in 1820, during the prevalence of yellow fever. I had at that time much conversation with this admirable person; who had seen more of this fatal disease under different circumstances, than any other man. He had seen the employment of all sorts of treatment in various countries; and he assured me, that although

the fatality would be great under any, yet it appeared to him, that it was less under the antiphlogistic than any other. We were much together at the hospital of which I had the charge; and he recommended the use of small doses of castor oil, diluent drinks, cream of tartar, gum Arabic, the vesicatoire volant, &c. Although I commenced this kind of practice late, yet my observations were still sufficiently numerous to convince me of its advantage. Dr. CHERVIN has also communicated to BROUSSAIS, a letter from Dr. VATABLE, of Guadaloupe, which confirms still more the benefit which may be derived from this species of therapeutics. Dr. V. states, that since he has employed it, the mortality in the hospitals has much decreased for some years past. In consequence of the prejudices, the inexactness, or the self love of medical men, statements of this kind are always indeed to be held in some degree of doubt, and are to be valued only as recommendatory to others. There is no name more indefinite and uncertain than yellow fever, and the remedies, as a matter of course, when they are attached to the name only, must be so also. I have spoken of it in this paragraph as a grade, and not as specifically distinct from bilious fever.

18. When the sympathy of the heart and other organs is too much roused, the revulsion becomes as injurious by excess as it is useless when deficient. This state is attended with strong pulse at the wrist, throbbing pain in the head, sensations of heat and thirst, flushing of the cheeks, inordinate secretions of bilious matter, yellow complexion, and sometimes delirium and phrenzy. The secondary affections, in this state, not only reflect upon the part primitively diseased, but become themselves an important object of treatment. The revulsive action of the heart must be reduced by abstraction of blood from the great vessels, that of the brain by lancing the large superficial veins of the neck, and by applications of ice, that of the skin by the cold bath, and that of the liver by cathartics to remove the vast accumulations of bile. Of this practice, in such cases, the success is indubitable. I know it well. Both external and internal stimulants add to the evil, and render it destructive. This state of the secondary irritations is a common occurrence in the early parts of the progress of our endemics. They come on with strong pulses, acute pains, and burning heats; and are easily managed by copious depletion from the sys-

tem generally. The topical or capillary bleeding and the emollient method, do not suffice. It would be presenting a pebble to stop the current of a river. Later in the season, the assault upon the stomach becomes more powerful. That viscus begins to engross a more undue share of excitement; the heart and other organs commence sympathising more feebly; and the secondary affections are less conspicuously developed. These effects, at a later period, are carried still farther; and finally, as in cases of black vomit, they are wrought up to the extremity of concentrated irritation. To manage the depleting remedies in accordance with these changes, requires no ordinary degree of sagacity. The excitement retreats, step after step, from the periphery; the treatment must pursue, step by step also, a corresponding career; and it is a difficult process to maintain the proper pace, so as neither to continue the vigorous remedies too long, nor to suspend them too soon. I have found myself first obliged to abandon bleeding from the general circulation, and to prosecute the employment of cathartics only. Then to lay aside the active cathartics, and to use none but the least irritating; and finally to resign all blood-letting and all purges, reserving the use of the injections of cathartic matters, or even of the most emollient substances, as flaxseed tea, or thin arrow root. I have already spoken of the pure expectant method in certain cases. The plan of the mulattresses of the West Indies, which has been so much celebrated in the management of yellow fever, would be perfectly adapted to these last grades of our endemics, and is very nearly that which I have employed in them. It consists in applications of lime juice to the skin, lime juice drinks and injections, and the warm bath. Lime juice, in form of lemonade, is freely used with us internally, but its external employment I have never witnessed enough to express an opinion of it.

19. From this slight sketch of the sedative method of treating fever, it is perceived how much intelligence and dexterity is necessary to carry it properly into effect. They are so necessary, that it is not in the power of every individual to succeed in the application of it. Natural discernment, experience and industry to improve that discernment, prudence and firmness, are indispensable requisites. It is easy to learn the names of pulses, to learn that there are various grades of fever, that there are

various distributions of excitement to the organs, that different quantities and appropriations of depletion are to be employed, without being able to distinguish them and to practise upon them. The medical ability of the closet is one thing, that of the bedside is another. The former is common enough, the latter is a rare quality, which few possess in eminent degree. Tacticians abound; yet how small is that number who execute, in a masterly manner, the rules which are comprehended in the science of war! SYDENHAM is acknowledged on all hands to have been a sagacious man, and he seemed to have been born for his profession. Yet even SYDENHAM talks of his embarrassments; not of the inefficacy of his remedies, but of the fit administration of them. When I speak thus of the difficulties of carrying into execution the tranquillizing system of measures, it is from personal observation. I know, from the humble improvements which I have made from time to time, in the use of them, that they are capable of effecting much which they frequently do not effect for want of skill. And when I make this remark, it is more in reference to myself than to others, the fault of failure being often my own, rather than of the means which I have employed. So well persuaded am I, of the need of nice perception, judgment, caution, patience, vigour, and all good qualities, to treat fevers agreeably to this mode, that I think, that where the practitioner happens not to possess them, it is better that he should do nothing in many cases, even where something ought to be done. For it is preferable to confide in the natural power than to blunder. The secondary affections once annihilated by mistake, in evacuating too much, the restoration of the patient becomes frequently impracticable. He sinks to rise no more. It is in vain to administer, in conformity with the ordinary routine, stimulating and tonic medicines. They are ineffectual or prejudicial. A physician of considerable experience constantly warned me against intemperate depletion, when I first went to Savannah. If, said he, you prostrate your patient by excessive bleeding or purging, he falls into typhus, from which you will find it generally impossible to extricate him. I have repeatedly seen a case decided by one profuse discharge from the bowels; and the dying of the patient on the pot has not been an uncommon thing in the United States. This fact is so well felt and understood, that some judicious men never

administer a full cathartic at one dose. They divide it into many parts, and order them to be given at prudent intervals, until the effect which they desire is precisely produced. If the case be critical and delicate, demanding gentle and exact effects, they do not leave any thing to the discretion of the nurse, but devote their personal vigilance for the purpose of assuring the safe and proper limitation. I think that enough has been now said to show how many accomplishments are necessary to form a finished practitioner with sedative remedies. It is evident that a studied experience is indispensable, and that no mere scholarship can be sufficient. It requires many years to learn the art of fencing with perfect adroitness. Would it be wise in an individual, who should fail to acquire the highest degree of dexterity in a few months, to condemn the sword as an inefficient weapon in defence?

ARTICLE II.—*Account of a Child who took Stramonium.*
By CH. D. MEIGS, M. D.

I BELIEVE that examples of poisoning by stramonium are not very common: certainly accounts of this affection are not so very numerous as to have become fatiguing, and as there is some difference in the statements of symptoms produced by the use of this weed, I have related the case below. When I was a student of medicine, my teacher, who was much employed in practice, took me to see a young girl, who had swallowed a number of seeds for the purpose of self-destruction. She was insensible, completely tetanic, and had a very dilated pupil. She recovered. I recollect that Dr. FENDALL had never seen but one case before.

The effect produced by stramonium on some of the first settlers of Virginia, was a high degree of intoxication.

The case which I am going to describe, occurred in a girl two years and a half old, daughter of Mr. C. Stelwagen. On the 24th October, 1824, (forenoon,) she had found a small bag, containing stramonium seeds, of which she ate an unknown quantity. The first symptom was a high degree of exhilaration, in which she excited much merriment by her extravagant gestures and speeches. This soon became alarming; and when I was called to

see her, she was laughing, crying, and singing, by turns, proceeding from one to the other state with the greatest rapidity. She occasionally started with great force and alarm, crying out that she was going to fall; when she would cling to her mother with as much desperation as if she was about to be thrown from a precipice. She would next become calm, then whistle, and afterwards point with her finger at muscæ volitantes, which she followed with the eye and hand, at last clutching at them, with an appearance of disappointment at the want of success.

The colour of her face was of a scarlet red. I have certainly never seen so intense a red in scarlatina. Her skin was hot; pulse much accelerated; and tongue and fauces dry and red; the former was so dry that it glistened. The face, neck, and breast were covered with hundreds of small brilliant petechiæ, many of which had a stellated form.

After an emetic, which operated very well and brought up only one seed, I gave her senna infusion, with repeated enemata. The nurse told me she had found 40 seeds in the evacuated matters.

The cerebral symptoms I have described gradually diminished till midnight, when she fell asleep. On the 25th she was tolerably well. The petechiæ were still quite evident, not being much changed. A troublesome itching of the whole skin, which came on yesterday, was gone.—27th. The child is well, but the petechiæ are not gone.

Nov. 4th. They are no longer visible.

ARTICLE III.—*Observations on the use of Balsam Copaiba in chronic Inflammation of the Mucous Membrane of the Lungs.* By R. LA ROCHE, M. D.

THE introduction of the Balsam Copaiba as a therapeutical agent in the management of chronic cough, may be traced to an early period in the history of our art, as it is found to have been prescribed in such complaints by some of the older writers. By MORTON, who was among the first to introduce it in the treatment of this disease, and by HOFFMAN, it was administered with success; and with FULLER it constituted a favourite remedy. In his work on the materia medica, CARTHEUSER, confirming what had been said on

the subject, informs us that it is advantageously used for the purpose of healing ulcers of the lungs; and by Sir JOHN PRINGLE and VAN SWIETEN, it was had recourse to, with a view of effecting this desired object. At a later period it was warmly recommended by Dr. FOART SIMMONS; and Dr. HALLE, in his notes on TISSOT, mentions that he exhibited it with great success, in a case in which, after a pleurisy, catarrhal symptoms continued, attended with fever and expectoration of matter apparently purulent.

Long, however, as the copaiba has been employed in pulmonary complaints, it is not until a very few years that the cases in which it is used with most success, have been accurately defined. To Dr. ARMSTRONG, of London, credit is doubtless due, for having shown, in his treatise on consumption, that this remedy is serviceable in chronic inflammation of the mucous tissue of the lungs, and not in a similar condition of the parenchymatous structure of these organs. But even this judicious writer has neglected to point out some circumstances in these cases, without a careful attention to which, the physician will often be disappointed in the employment of the balsam. Having for some years prescribed it in affections of the lungs, I propose now to lay the result of my experience with it, before the readers of this Journal.

In doing this, it is first necessary to specify those cases of pulmonary complaints, in which this remedy has been found more decidedly effectual. As already remarked, it is in chronic inflammation of the mucous membrane of the lungs;—in other words, in the disease termed chronic catarrh. In his work entitled "de l'Auscultation médiate," LAENNEC has divided this malady into two varieties,—the humid and the dry; and the former he has subdivided into mucous catarrh, in which the expectoration is yellow and opaque, and the pituitous, in which the matter is transparent, white, ropy, and resembling the white of an egg mixed with water. The balsam copaiba will be found beneficial in both varieties of the humid catarrh; but were I allowed to advance an opinion founded on the result of my own personal experience, I should feel inclined to say, that it will be found more particularly useful in the former.

After thus pointing out the particular form of pulmonary affection in which the balsam copaiba will be found most serviceable, I shall next very briefly direct attention to its modus operandi

in such complaints. In doing this, it will be proper to recall to the mind the principal phenomena observed when we administer this remedy. Exhibited in a sufficiently large dose, and in a healthy stomach, it will in general be found to stimulate pretty actively the digestive organs, to occasion heat and an acrid sensation in the throat, some heat in the stomach, and sometimes all over the system, frequency of pulse, in some instances nausea, colicky pain, and catharsis, and in most cases an increase of the secretion of urine, to which it imparts a peculiar appearance and smell. When the stomach, however, is labouring under irritation, this medicine is found to exert a more powerful action on that important viscus, and to aggravate the existing disease. From all this it naturally follows, that whatever be its modus operandi in the cure of disease, balsam copaiba must be regarded as a stimulant, and consequently should not be prescribed indiscriminately in all cases, without a careful attention to the state of the system, and more especially of the organ to which it is applied. But to return to the question more particularly before us. Without alluding here to the supposed vulnerary virtues of the copaiba, as believed in by the older writers, we shall observe, that the opinions of physicians on the subject before us are diversified; some maintaining that it acts by virtue of a specific action on the mucous surfaces; hence, they say, the advantage we derive from its use in gonorrhœa, gleet, catarrhus vesicæ, leucorrhœa, &c.; others, that it acts by stimulating the affected mucous membrane, either sympathetically or through the medium of the circulation; a third class of physicians entertaining the opinion, that in all cases of chronic bronchitis, the copaiba does good by stimulating the stomach, thereby attracting on that organ a part of the irritation existing in the lungs; in other words, by operating as a mere revulsive on the stomach. Lastly, some believe that it produces its effects by impression on the urinary organs, occasioning on these a stimulating action, by which the irritation of the mucous surface, constituting the disease, is gradually relieved, and finally is made to disappear,—giving way to the healthy action of the parts.

The limits to which I am forced to restrict myself on the present occasion, compelling me to omit publishing the remarks I had prepared on the three first opinions above mentioned, I shall merely offer a few words in support of the last, to which,

I believe, too little attention has been paid by physicians. Without rejecting the views to which I have alluded, I am inclined to believe that the balsam copaiba exerts a beneficial influence in chronic bronchitis, by virtue of a revulsive action produced by it upon the urinary apparatus; perhaps more particularly on the mucous surface of these parts. The sympathies which the different portions of this membrane exercise on each other, have been at all times acknowledged; though in our explanation of the phenomena of disease, or of the action of remedies, we have not devoted to them that degree of attention to which they are so deservedly entitled. Without necessarily carrying our views to the extent done by some modern pathologists, we shall find, on careful investigation, that many remedies operate on the system on the principle of revulsion,—which principle cannot be satisfactorily understood without bearing in mind the sympathetic union of all the tissues and organs of our system. Now, if with this fact in view, we examine the effects of the balsam copaiba, we shall find no difficulty in understanding, that this remedy is beneficial in those affections of the lungs to which the attention of the reader has been called, mainly by producing a revulsive action on the mucous surface and secretory vessels of the urinary apparatus; which action is so much the greater, as there exists between these parts an evident and intimate association, evinced by the fact, that these organs are among those charged with depurative functions,—possessing an antagonizing action, and relieving each other from undue irritations.

These are not the only reasons, however, which lead me to adopt this view of the subject. In all my trials with the remedy, I have invariably found, that in those cases in which its exhibition has been attended with advantageous results, it has always acted on the urinary organs either by augmenting the secretion of urine, or at least imparting to this fluid a peculiar smell, and a brownish appearance. 2. In these cases, it did not affect sensibly the stomach or bowels, and therefore could not have produced on these organs an irritation capable of diminishing that existing in the lungs. 3. My belief is the more strengthened from the consideration of the fact, that the same benefit is derived, in similar affections of the lungs, from remedies which are classed among the most energetic of the diuretics; as for example, garlic, cantharides.

colchicum, &c. Nor have all physicians failed to notice this revulsive action from the lungs to the urinary organs. Not to cite many names, I shall merely call attention to the sentiments of Dr. Waterhouse, contained in his work on whooping cough; who, alluding to cantharides, says, that they produce benefit by stimulating the urinary organs. It is not unlikely, then, that balsam copaiba acts in this way in the cure of chronic inflammation of the lungs, as much as by a specific action on the whole tract of the mucous membranes. Speaking of its modus operandi in gonorrhœa, Dr. Broussais suggests the idea that the balsam acts by virtue of an expansive diffusible excitement produced by it, and which is principally spent on the secretory organs, and disseminates the irritation at the expense of that already existing.* This would still be explaining it on the principles of revulsion. But were it true that balsam copaiba acted in this way, and were all secretory organs excited by this remedy, the disease of the lungs would necessarily be aggravated, since the secretory action producing the matter expectorated would also be excited. The opinion above adverted to would seem, however, to be in some measure invalidated by one advanced by Miquel, in his critical letters on the doctrine of Broussais, and by a much higher authority, Professor Lallemand; (Lettres sur l'Encephale, Let. 2. p. 489;) namely, that a revulsive must, in order to cure, occasion an inflammation greater than the original one. That such a sentiment is correct in many instances, as for example, in acute diseases, may be admitted; for we generally find in such cases, that the irritation of the remedy, if too weak, instead of removing the first affection, aggravates it; but we daily see in chronic inflammations, slight irritation applied to a large and sensitive surface, produce relief, even when we cannot for a moment admit that the remedy is more powerful than the disease. Who has not derived a revulsive and beneficial effect from embrocations in chronic rheumatism, from warm pediluvia in affections of the head, or from stimulating injections in various diseases?

Before proceeding farther, I must here endeavour to anticipate an objection, which, by some, might be offered to the view I have taken of the subject before us. It is a fact which, though to some it may appear unaccountable, is nevertheless true, that

* Annales de la Médecine Physiologique. T. 6. p. 38.

some substances taken in proper and moderate doses, and applied to a healthy stomach, will not produce a very stimulating effect on this organ, whilst on the contrary, their action is principally spent on other organs with which they have affinity. Thus mercury will occasion irritation of the salivary glands, ergot give rise to active contraction of the uterus, aloes to an irritation of the lower end of the rectum, and cantharides of the neck of the bladder; whilst the stomach which has received the first impression of these substances, remains in many instances undisturbed. The same may be said of the whole class of diuretics, among which balsam copaiba is enumerated; for unless the stomach and bowels be inordinately irritated and the dose too large, they will produce their effects on the urinary apparatus, and the digestive organs will remain unaffected. It may be asked however, granting the correctness of the present hypothesis, how does balsam copaiba get to the urinary organs, in order to produce there an action revulsive of that in the lungs? Many, perhaps, will maintain that it is by virtue of a double sympathy;—the balsam acting first on the stomach, from thence sympathetically on the urinary apparatus, and from these again on the lungs. To me it appears, however, that this opinion is gratuitous, since we can explain the fact in a more easy and rational way. Experiments the most diversified, and conducted by many of the most intelligent and skilful physiologists, have proved beyond the possibility of doubt, that many medicines enter the circulation, and are in this way carried to the various organs with which they have affinity. It is more than probable, therefore, that the remedy under consideration, follows this route, and is conveyed, by means of the circulating vessels, to the urinary organs, on which it produces the desired action.

Be this, however, as it may, the preceding remarks have been thrown out merely as desultory hints towards an explanation of the modus operandi of the copaiba; and I would certainly not wish to be understood as stating, that in my opinion, it acts beneficially in chronic bronchitis *only* in virtue of this revulsive action on the urinary organs. So far from this, I am inclined to the belief, that, in the present state of our knowledge, it is much more philosophical to abandon all exclusive views of this subject, and attribute the effect of this remedy to a combined operation on the stomach, and on the eliminating organs;—in fact, to admit, to a

certain extent, *all* the opinions I have alluded to above; but which want of space, and the fear of abusing the patience of the reader, have prevented me from examining in detail.

In an early part of this essay I have taken occasion to remark, that in the administration of the copaiba in chronic bronchitis, some circumstances should be carefully attended to, which but few of the writers who have spoken of the use of the remedy, in the present or any other disease, seem to have noticed. I allude more particularly to the state of the general system, and of the surface on which it is applied. This is a subject of the utmost importance, and which should never be lost sight of by the physician. Indeed the secondary effects of remedies are so greatly modified by the condition of the organs which receive the primary impression, that every practitioner must have noticed cases, in which, from want of proper attention to this circumstance, effects diametrically opposed to those intended have resulted from the administration of remedies. As regards the copaiba, administered during a febrile condition of the system, the force of the circulation is directed towards the skin, whilst the depurative action of the kidneys is diminished. In consequence of this, the remedy, remaining in the circulation, is productive of irritation in all the organs to which it penetrates, and unless carried off by the bowels, aggravates the febrile excitement as well as the disease for which it was prescribed. Care should be taken, therefore, to select such cases as are free from fever, or at least such periods of the disease when the irritation of the heart and blood-vessels subsides, and the apyrexia becomes complete. Nor is this the only circumstance to be attended to, in administering the copaiba; in order to ensure its complete success, the stomach and bowels must be in a healthy state, and free from irritation. Should this be lost sight of, this latter state, indicated by redness of the tongue, thirst, tenderness of the epigastrium, &c. will serve to counteract its beneficial influence. In such cases the gastric irritation becomes aggravated, as manifested by nausea, vomiting, pain, and even a febrile excitement. Should the bowels be in like manner irritated, pain, purging, and tenesmus, may be, and often have been, the consequence of the employment of the remedy. The copaiba being still persevered in, the irritation not abating, and in consequence, the connexion which

in a healthy state exists between the stomach and kidneys diminishing, the bronchial affection becomes aggravated, as manifested by an increase of cough and expectoration;—effects which arise from a reflection of the irritation from the stomach to the bronchia, as well as from a defective elimination of the particles of the copaiba. "It is thus," says a judicious writer, "that physiology, and a perfect knowledge of the condition of all the organs, must always guide the physician in the application of therapeutical agents."—(Begin, Therapeutique, p. 498.)

It is true, that when, under the use of the copaiba, nausea is occasioned, this symptom may sometimes, as Dr. Armstrong has noticed, be obviated by combining with the remedy some aromatic water, and that when it purges too actively, paregoric may be had recourse to with advantage; but this I have generally found to take place only in such instances in which the nausea and purging arise from natural irritability of the stomach and bowels, and not from irritation of their mucous coats. Under the latter circumstances it will be found much preferable to discontinue the remedy, and to use means calculated to relieve the morbid condition of the affected organs. A gentle emetic of ipecacuanha, or a dose of castor oil, when the nausea or purging arises from the presence of irritating bile in these organs, will be found advantageous. When, on the contrary, these symptoms depend on irritation of the lining coat of the stomach or intestinal canal, mild mucilaginous and diluent drinks, enemata, leeches to the epigastrium or anus, and abstinence from food, will be prescribed with the happiest results. As soon as by these means the irritation is subdued, the copaiba may again be resorted to, (in smaller doses, however, than when discontinued,) whilst the condition of the digestive organs must be carefully watched. When, notwithstanding a due regard to these precautionary means, however, the balsam copaiba produces the symptoms we have just enumerated, it must be laid aside. Begin recommends that balsamic remedies should not be given for a long period, and that their use should be discontinued for a short time, in order that the stomach and bowels should recover from the stimulation they necessarily suffer, and regain their susceptibility. This recommendation cannot be too strongly enforced on the mind of young practitioners; as by attending to it we obviate the necessity of administering these

substances in enormous and sometimes dangerous doses; and from what I have seen, we ensure their beneficial effects.

Under the use of this remedy, the urinary secretion will be found, in some cases, though not in all, increased; it will acquire a peculiar smell and colour, and in the majority of instances, the cough will at the same time be observed to diminish, as also the expectoration, which will gradually assume a more healthy appearance. It could only be from a want of discrimination of the cases in which the balsam copaiba was likely to be of benefit, and from his inexperience with this remedy, that Dr. FOTHERGILL could have been induced to condemn, in the most positive terms, its use in phthisis, and to declare, that a medicine so pungent and heating cannot be supposed safe, much less beneficial in a disease that requires a very different treatment:*—an opinion which Dr. DUNCAN informs us has of late been very generally adopted. It will appear also to every one, that the anathema pronounced upon balsamic remedies by CULLEN, though more especially by his learned commentator BOSQUILLON, BONNAFOX, DEMALET, BRIEUDE, PORTAL, and at a more recent period by BROUSSAIS, BEGIN, and LASSERE, refer more particularly to their employment in genuine phthisis pulmonalis and laryngea, and not in that variety of the disease here principally referred to.

The copaiba, as Dr. ARMSTRONG has very well observed, produces also, sometimes, an itching or eruption on the skin, which gives relief to the cough. Instances of this kind have often been noticed in this city, and have sometimes necessitated the discontinuance of the medicine. It will be found at times that costiveness supervenes during the administration of the balsam. This more particularly happens in those cases in which laudanum, or other preparations of opium, are given to procure sleep, or quiet purgative effects. In these instances reliance should be placed on enemata, castor oil, or magnesia, but more particularly on sulphur, which Dr. PHYSICK has used extensively in this complaint, and with the happiest results. By Dr. ARMSTRONG also, this medicine is spoken of in terms of high commendation. "The older chemists," he remarks, "called sulphur the balsam of the lungs, from the then current opinion of its effi-

* Medical Observations and Enquiries, vol. 4. p. 240.

cacy; and when we consider that it has a specific action on the skin, we cannot be surprised it should sometimes be very useful."

On the subject of the diet to which the patient should be restricted during the administration of this remedy, and particularly when an undue degree of irritability exists in the digestive organs, I need not enter at large, as it is familiar to every practitioner. I must be allowed to remark, however, that when the stomach of the patient will bear it, I am very partial to a milk diet, having witnessed many instances in which it proved very beneficial in pulmonary and other complaints. I shall, on a future occasion, lay these cases before the readers of this journal, and now proceed to detail a few of those in which I have found the balsam of advantage in mucous inflammation of the lungs.

Case 1st. Christina P., aged about 18 years, was attacked, towards the end of September, 1821, whilst in the country, with the characteristic symptoms of inflammation of the lining membrane of the lungs. She was bled, vomited, and purged by the physician of the place, and kept on a strict antiphlogistic regimen. About two weeks after her first attack, she was removed to the city, and placed under my direction. At the first visit she presented the following discouraging symptoms: violent cough, which was particularly troublesome during the night, and accompanied with a copious expectoration of matter of a dark yellowish-green colour and unpleasant smell, and sinking in water. She was moreover labouring under fever, characterized by a pulse beating 120 strokes in the minute—hot skin, especially of the palms of the hands—hectic flushes, night sweats, &c. &c. She was ordered the usual remedies, with demulcent drinks, mild anodynes at night, and a blister to the chest. After continuing a few days under this treatment, she was suddenly attacked with hæmoptysis, and her fever acquired intensity. For these symptoms she was bled to the amount of 10 ounces, ordered 15 drops of tincture of digitalis, three times a day, and the blister was kept in a state of suppuration. From these means she experienced some relief; the spitting of blood was arrested, and the condition of her pulse and skin improved. Finding, however, that her cough and expectoration continued as before, together with her nocturnal febrile excitement, and observing, moreover, that there existed no sign of irritation of the stomach, she was ordered to take a table-spoonful

of balsam copaiba mixture three times a day. Under the use of this medicine and of the digitalis, the nocturnal febrile symptoms amended, the expectoration improved, and the appetite gradually returned. She was then put under the use of a small quantity of milk for diet, and the mixture was continued. By persevering in the use of these means, she derived such manifest benefit, that after a few weeks, she was in a fit condition to be allowed a more substantial diet, and to be permitted to visit her parents in the country, whence, after a few months, she returned in apparent good health, and free from cough, expectoration, or fever. She now enjoys good health, is married, and has borne children.

Remarks.—This case, the first of this disease in which I had employed the copaiba, was well calculated to make a strong impression on my mind, and to induce me to have recourse to it on the first favourable occasion that should present itself to my observation. I accordingly soon did so in a case of confirmed phthisis, for which I was consulted, not with a view of curing the patient, for the disease had already progressed too far to allow me to anticipate a recovery, but of relieving her troublesome cough, and copious expectoration. Nor was I disappointed in my expectation; the cough was in some measure relieved, but in the course of a few months the patient sunk to the grave. The same effects have subsequently been derived in many similar cases, from the same remedy; but yet I am far from wishing to inculcate the idea, that in most cases of confirmed phthisis of either kind admitted by nosologists, the copaiba will be found an effectual and useful remedy, or even a palliative; for I am too well aware, that this disease is, in very many cases, accompanied with symptoms indicating irritation and even inflammation of the stomach and bowels, and with general fever, which, as we have seen, contraindicate the use of the remedy.

Case 2nd. Mrs. P., an old lady, about 65 years of age, and who has been subject for many years to frequent attacks of bronchitis, supervening on a chronic state of the same disease, was taken, in November, 1823, with high febrile excitement, violent cough, dull pain about the chest, a little oppression, headach, thirst, foul tongue, nausea, &c. The state of her pulse seeming to forbid the use of the lancet, she was puked with ipecacuanha, her bowels were opened with senna and manna, she was kept on low

diet, and under the influence of small and repeated doses of antimony. After a few days her fever abated, but the cough continued very troublesome, and expectoration very copious, yellow, thick, and opaque. Small nauseating doses of ipecacuanha, opiates at night, and tartar emetic ointment to the chest, which were now resorted to, seemed to produce a beneficial effect, and were persevered in for some time. Finding, however, that her cough and expectoration were still troublesome, and as her tongue was now perfectly clean, moist, and rather pale, and her digestive organs in a natural condition, she was ordered 25 drops of balsam copaiba, in a wine-glassful of cold chamomile tea, three times a day. She continued under the use of this remedy during four weeks; increasing the dose gradually to 40 drops, and adding occasionally a few drops of laudanum, to prevent catharsis. She was at the same time recommended a strict milk diet, and at the end of the period before mentioned, I had the satisfaction of finding that all her unpleasant symptoms had disappeared. She continued to enjoy perfect health for several months after; since which time I have lost sight of her. When I last saw her, she unhesitatingly informed me that she was better than she had been for a long time before, and attributed her cure to the balsam.

Remarks.—I am perfectly aware, that by many I shall be accused of attributing, perhaps, too great an agency, in the happy termination of this case, to the copaiba; and that the external revulsive application, together with the other remedies and the abstinence, might have been sufficient to effect the cure, without the aid of this medicine. Admitting, however, that this *might* have occurred, would we not be warranted, by a parity of reasoning, in calling in question the real efficacy of every article of the materia medica; since few are used *alone*, and without the assistance of others. But it may be remarked, that the subject of the present observation had been affected before with similar symptoms, and that, although treated by means of the same remedies to which I had recourse, the copaiba excepted, she had retained her cough for a number of months or even years. When this remedy was commenced, the cough was very troublesome, and expectoration very copious; and in a very few days a change for the better was noticed. From which I must be allowed to believe that we

may, without impropriety, attribute to the copaiba some agency in the cure.

In this case, the urinary secretion was not much affected in respect to quantity; but a good deal so in smell and appearance.

Case 3d. Mrs. Lay, aged 73 years, was attacked, a few weeks after the recovery of the preceding patient, with all the characteristic symptoms of inflammation of the mucous tissue of the lungs, violent cough, sense of oppression, dull pain in the chest, hot skin, &c. The pulse being tense, venesection was had recourse to twice in the first 24 hours; after which a blister was applied over the chest.

In the course of the treatment she was ordered small doses of antimonial preparations, and occasionally purged with castor oil. By means of these remedies much benefit was obtained; her oppression and pain gradually disappeared, and her pulse, skin, and digestive organs, returned to their natural state. The cough continuing, however, and the expectoration being very copious, thick, opaque, and yellow, the remedies usually employed on such occasions were used several weeks, without effect: balsam copaiba was therefore substituted, and administered in an emulsion, in doses of 25 drops three times a day. Under the use of this medicine, the unpleasant symptoms gradually diminished, and at the end of less than a month had totally disappeared. Shortly after, however, Mrs. D. was attacked with all the symptoms of softening of the brain, which in a few days, terminated fatally.

Remarks.—It is evident that in this case, notwithstanding its termination, the balsam copaiba was beneficial; since, under its use, the symptoms for which it was prescribed were entirely removed. The cephalic attack, from all appearances, was unconnected with the primary disease, and could not arise from the action of the copaiba.

Case 4th. Isabella S——, about 25 years of age, of a lymphatic and bilious temperament, and subject for some time to frequent *colds*, was attacked in December, 1823, with the usual symptoms of catarrhal fever; hot skin, frequent pulse, headach, attended with fulness and pain in the chest, and harassing cough. She was bled, puked with ipecacuanha, ordered antimonials in small and

repeated doses, and demulcent drinks, and placed on a strict antiphlogistic diet. In a few days, the most urgent symptoms had in great measure subsided, but the pain and cough continuing troublesome, a blister was ordered to the chest, antimonials continued, and occasional doses of castor oil administered. This plan of treatment was persevered in for some time; when the fever diminished through the day, and only appeared towards night, attended with hot skin, quick pulse, and perspiration towards morning. The cough, however, still continued,—was especially violent towards morning, and the expectoration was copious, thick, yellow, opaque, and at times of a greenish tinge.

Thinking that this opportunity was favourable for the administration of the copaiba, it was prescribed in doses of 25 drops three times a day, in a wine-glassful of milk, to be increased five drops each dose every third day, unless it produced irritation of the stomach, as indicated by nausea, pain, thirst, &c. Under the use of this remedy, occasional anodynes, and a mild diet, the cough and expectoration gradually disappeared, and in the course of a few months the girl recovered. She now enjoys good health.

Case 5th. Sarah Morgan, aged 9 years, of a lymphatic temperament, narrow chest, and who had laboured a few months before under an attack of bronchitis, was taken in November, 1824, with fever, loss of appetite, cough, very copious expectoration of white, thick matter, not attended, however, with pain in the chest. She emaciated very rapidly; her skin became hot; her cheeks were flushed, especially at night; pulse much accelerated. In the course of ten or twelve days, she was puked several times with ipecacuanha, purged with castor oil, ordered small doses of antimonial wine, and kept on low diet. Under this plan of treatment she seemed to improve; the fever subsided, and no other symptoms appeared to remain, with the exception of her cough and copious expectoration. Mild tonics were now administered, and anodynes given at night to allay irritation; but under the use of these remedies the symptoms were aggravated, her pulse once more became accelerated, her skin hot, and the expectoration insensibly acquired a fœtid smell and greenish tinge. It was now evident that the tonic plan, so far from being beneficial, had aggravated the irritation of the lungs. It was in con-

sequence laid aside. Antimonial wine was once more resorted to, and a blister applied to her chest. After a few days, the irritation of the system was calmed, but the cough and expectoration remained unabated. Under these circumstances she was put under the use of balsam copaiba, in doses of six drops three times a day, and anodynes were given at night to procure sleep. By persevering in the use of this remedy, and of a diet consisting of milk diluted with barley water, and a small portion of stale bread, Miss Morgan recovered perfectly in the course of six weeks. She had the benefit of the advice of Dr. PHYSICK, who at my suggestion was requested to attend in consultation.

The following case I owe to the politeness of my friend Dr. MONGES, of this city, a physician as distinguished for his extensive experience and practical accuracy, as for the rectitude of his judgment and his polished manners.

Mr. Roberts, aged 22 years, of a lymphatic temperament, and who had lost two brothers with phthisis pulmonalis, was attacked a few years ago with the usual symptoms of catarrh, which were soon so aggravated as to threaten him with consumption;—the cough having become dry and harassing, and the fever gradually more intense and continual. For these Mr. R. was bled several times; cups, leeches, and blisters were in succession applied to the chest, and occasional emetics prescribed. This plan was persevered in for three weeks, when finding that Mr. R. was not benefited by it, and that his disease was assuming the same march as that which had proved fatal to his brothers, I resorted to mercury, in order if possible to arrest its progress. The gums soon became affected, and the salivation was kept up for six weeks. But from this powerful revulsive no benefit resulted. So far from this, indeed, the symptoms were much aggravated. The pulse was now 120 in a minute;—the skin dry;—cough frequent;—expectoration very copious. Night sweats soon supervened; the lower extremities became œdematous, the debility extreme, and exercise occasioned difficulty of breathing. Under these circumstances Mr. Roberts was sent to the country, where he remained all summer, taking gum arabic and milk for nourishment, occasional purgatives, antimonial preparations, and squill. When he returned from the country he appeared worse, the fever had assumed the hectic character, the nocturnal sweats were more

copious, his debility was greater than when he had left the city, and his features were so much altered that I did not recognise him. Milk was now discontinued, and nourishing food ordered; balsam copaiba in large doses was administered, and its cathartic effects prevented by opiates. This remedy had hardly been used two weeks, before the symptoms were in a great measure amended. The cough was better, the expectoration improved in appearance, the nocturnal fevers less severe, and the sweats less copious. The balsam was continued three months, when a cure was effected. At my suggestion young Roberts abandoned the sedentary business of silversmith, which until that period he had followed, and adopted the active life of a farmer. Three years have now elapsed since Mr. Roberts's first attack, and although he has suffered from intermittent fever, and last spring from the influenza, his health is as good, and perhaps better, than before the severe attack in question.

Remarks.—It must be evident to every one, that in this, as well as in the two preceding cases, the balsam copaiba was of the most decided benefit; as it put a stop to an irritation of the mucous membrane of the lungs, which had it been allowed to continue much longer, might, owing to the predisposition of the patients arising from their temperaments, have occasioned the formation of tubercles and ended in phthisis. For it is a well established fact, that tubercles are in almost all cases the result of neglected inflammations of this membrane.

Case 7th. J. E., about thirty-five years of age, of a strong constitution, and bilious temperament, and by profession a mariner, was taken, whilst on the coast, with the usual symptoms of pulmonary inflammation. For the first four days, little or nothing was done to remove the disease; so that when he came under care, (Feb. 1826,) I entertained fears lest the inflammation had already progressed too far to be arrested. The pain was very considerable, the pulse strong and full, the oppression great, the cough almost continuous, and expectoration bloody. To remove these symptoms, the lancet was very freely and repeatedly had recourse to, warm cataplasms applied to the painful part, antimonials administered, &c. and the lowest possible diet enjoined. After a few days, the force of the attack appearing somewhat lessened by these means, a blister was applied to the chest, the

antimonials continued, and occasional cathartics prescribed. This plan being persevered in for some weeks, the heat of the skin abated; but still the pulse was quick, particularly at night, the pleuritic pain was not entirely removed, and the cough was troublesome, and attended with a copious expectoration of yellow or greenish matter. Swelling of the feet and face supervened, and upon the whole, the case appeared a very unpromising one.

The gastro-enteric apparatus, however, appearing in good condition, as indicated by clean tongue, appetite, no thirst, and regular bowels, the balsam copaiba was prescribed in the usual way; opiates were given to procure sleep; and, to obviate the extreme debility of the patient, milk and barley water, with a small portion of toasted bread, was allowed twice a day. Tartar emetic ointment was likewise ordered to be rubbed on the chest, to remove the pain remaining there; and produced a small crop of pustules.

Under this plan of treatment the patient continued about five weeks, and at the expiration of that time was considered so much improved in all respects, as to be allowed to use a more nourishing diet. The pain being still somewhat troublesome, external revulsives, and the balsam, were advised to be continued, and in a very short time succeeded in removing all traces of the disease. J. E. has since left this country in perfect health.

Remarks.—Although in the treatment of this case, I did not avail myself of the aid of the stethoscope, I think it may be affirmed, that I had to combat a conjoint inflammation of the pleura and of the mucous lining of the lungs; which, not having been arrested in the outset, had passed to a chronic state, and would, unless interfered with by proper means, have conducted the patient to the grave, with the usual symptoms of phthisis pulmonalis. Indeed so unfavourable was my diagnosis of the case, that I requested one of my most experienced medical friends to visit him once or twice with me, and his opinion corroborated mine, as to the precarious situation of the patient:—so true it is, that physicians are very apt to be mistaken in their predictions respecting the issue of the most desperate case. Whether or not my opinion will be supported by that of my practical readers, I am disposed to attribute a considerable agency in this cure to the copaiba; as the benefit seemed to succeed closely its exhibition,

and the case seemed closely allied, in all that relates to the mucous inflammation, to some others in which there could be no hesitation as regards the efficacy of this remedy. I would not, however, be thought to overlook the aid that was derived from the tartar emetic ointment. To it, indeed, we must refer the removal of the pleuritic irritation.

Other cases might be adduced in confirmation of the advantage that may be derived from a judicious use of balsam copaiba in chronic inflammation of the mucous membrane of the lungs; but the fear of fatiguing the readers of this journal, and extending, beyond proper limits, this already long article, compels me to restrict myself to these I have detailed. On some future occasion I shall resume the subject of this remedy, and offer some observations on its use in affections of the other portions of the same membrane.

ARTICLE IV.—*On Infantile Convulsions arising from Spasm of the Intestines.* By JOS. PARRISH, M. D., one of the Surgeons of the Pennsylvania Hospital, &c. &c.

AMONG the disagreeable effects produced by intestinal irritation in infants, is a species of convulsion resembling the epileptic fit in appearance, but materially differing from the ordinary form of that disease, both in its origin, and the mode of treatment which it demands. A character by which it may, in most instances, be readily distinguished from genuine epilepsy, is the total absence of stupor, after the cessation of the convulsions. Instead of remaining, for some time, in a comatose state, the child, upon recovering from the fit, immediately becomes entirely sensible, and looks as though nothing had happened. The attacks are generally sudden and of short continuance, and in the beginning are seldom frequent. Sometimes two or more will take place in quick succession; and days, and even weeks will elapse before the return of the convulsions. If not arrested, however, they become more frequent; and, at length, the nervous system is rendered so excessively irritable, that an almost constant convulsive action is kept up, till the tender frame of the infant becomes exhausted,

and sinks under the disease. So far, however, as I have seen, the affection generally yields to proper treatment; and a relapse may be prevented by attention to the diet, and the state of the bowels. The infant is usually attacked within the year; and if it survive the period of dentition, may be considered safe.

That the primary affection is seated in the bowels, and consists of spasm of its muscular coat, is evinced by the symptoms which are presented in the intervals of the convulsions. The child often screams out suddenly, throws itself back, and stiffens its body, exactly as in an attack of flatulent colic; and the comparative ease which it regains in a few minutes, proves the affection to have been spasmodic. Even when the pain is less severe, the peculiar motions and complaints of the infant are such, as experienced mothers and nurses immediately attribute to uneasiness in the cavity of the abdomen. The relief which sometimes follows discharges of flatus, is another proof, if more were wanting, of the nature of the complaint. Indeed the extrication of air in the bowels is often very abundant; so much so that the abdomen swells, and even becomes tympanitic. The nature of the discharges also indicates disorder in the alimentary canal; and the existence of acidity is frequently manifested, as well by the sourness of the breath, as by the smell and appearance of the stools. It is of the utmost importance to observe accurately these symptoms of abdominal affection; as they both enable us to form a correct view of the nature of the convulsions, and at the same time point out the course of treatment proper for their removal.

In a case which fell under my care, in the year 1821, and which unfortunately proved fatal, I had an opportunity of verifying my views of the nature of the disease by dissection. The subject of the attack was an infant about five months old. The convulsions came on instantaneously, without the least warning; and, immediately after they had passed, the patient was quite sensible, and sometimes even playful. At first, several days intervened between the fits; and, contrary to the general rule, they came on at one stated time, about or a little after day-break. They afterwards became more frequent and distressing; and towards the close of the case, severe spasms or partial convulsions occurred in the intervals, the child screaming out, and appearing to be in much pain. The treatment was principally directed to the bow-

els; but leeches were twice applied to the head, and blisters were placed behind the ears. Though relief was occasionally obtained, yet no permanent impression was produced upon the disease; and, notwithstanding all my efforts, the little sufferer expired. Upon dissection, the bowels exhibited strong evidence of having been under the influence of severe spasm. More than half of the small intestines were irregularly contracted. In some places, for more than an inch in extent, the bowel was reduced to the size of a goose-quill: in others it appeared as if tied by a thread, its calibre being almost obliterated. The omentum was closely folded up, in the form of a thick twine or small rope, and lay on the arch of the colon. In the gall-bladder was a light-coloured and glairy fluid. No other sign of disease was visible in the cavity of the abdomen, or in the thorax. The condition of the brain I did not examine; as I thought sufficient evidence of the cause of death was afforded by the appearance of the bowels.

Though, from the symptoms during life, and the phenomena presented by dissection, I am inclined to attribute these convulsions to intestinal spasm, yet there can be no doubt that difficult dentition greatly aggravates the disorder. This it does, in all probability, more by its influence upon the bowels, than by its direct operation upon the brain and nerves. Inflammation of the gums in infants, is exceedingly apt to produce irritation in the alimentary canal; and by giving rise to spasm in this part, or aggravating it if already existing, may either serve as a remote cause of the convulsions, or may render them more severe and more difficult to cure. I do not, however, deny that dentition, like any other source of irritation, may produce convulsions by directly operating upon the cerebral system. We undoubtedly meet with instances of the kind; but the symptoms, in these cases, are materially different from those of the disease under consideration. The attacks are less frequent in their occurrence, are accompanied with greater arterial excitement, and generally exhibit more obvious symptoms of disordered action in the brain.

In the treatment of convulsions from intestinal spasm, we are presented with two obvious indications: namely, to relax the spasm, and to remove those sources of irritation from which it arises. I shall proceed to detail the remedies which I have found most effectual for both purposes. Of those calculated to relax

spasm, blood-letting is one of the most important. Though not called for by the condition of the pulse, nor by the existence of any inflammatory action, it sometimes affords great relief, and is useful also by preparing the system for the administration of the antispasmodics. General bleeding is preferable to leeching, as it produces a more prompt and decided impression: but the local abstraction of blood may be resorted to with advantage, when the constitution of the child is delicate, and there is reason to apprehend excessive debility from the use of the lancet.

Another important relaxing remedy is the warm bath. This may be used advantageously during the fit, when its duration is more than usually protracted, or the convulsions are uncommonly severe.

But the means upon which I place most reliance are the antispasmodic medicines. Of these I prefer the assafœtida, given very freely, in the shape of emulsion, both internally and by the rectum. In either way it may often be advantageously combined with a little laudanum; especially when, in the intervals of the convulsions, the infant screams much and appears to be in pain. According to the age of the child, from two to five grains of the gum-resin may be given every two hours; and when laudanum is adviseable, one or two drops may be added to each dose. In the form of enema, from 10 to 20 grains should be administered at once, and repeated more or less frequently, according to circumstances. Sometimes the assafœtida cannot be retained on the stomach; and its very frequent use in the way of injection may produce unpleasant irritation of the rectum. Under these circumstances, the rectified oil of amber may be usefully employed as a substitute; and I have sometimes derived advantage from alternating this medicine with the assafœtida. I prescribe it in the dose of from two to five drops, rubbed up with gum arabic, loaf sugar, and cinnamon water. Should the case resist the influence of these antispasmodics, or should they lose their effect upon repetition, the musk julap may be resorted to. In more than one very severe case I have employed it with the most manifest advantage. The proper dose is from half a grain to one grain, every hour or two hours, during the greatest violence of the symptoms. If there should be much pain, laudanum should be combined with the oil of amber or musk, as before recommended

with the assafœtida. Sometimes more effectual relief will be afforded by the laudanum in the form of anodyne injection; especially when the stomach is irritable. From four to eight drops may be given in this way, and repeated when called for by the symptoms.

At the same time that these remedies are administered internally for the relaxation of the spasm, the use of external measures, for the same purpose, should not be neglected. In most of the spasmodic complaints of infants, I recommend the application, along the spine, and over the parts more especially affected, of a liniment composed of oil of amber and laudanum, diluted with equal parts of olive oil and brandy.* In the complaint under consideration, decided advantage may be expected from freely bathing the back and abdomen with this liniment. Garlic and brandy, employed in the same way, is also a useful application. In severe cases, the abdomen should be covered with a large blister.

But while we are thus endeavouring to overcome the spasmodic action of the intestines, we should not overlook those sources of irritation, which, if they do not give rise to it, at least render it more severe and obstinate. In the very commencement of the treatment, the contents of the intestines should be freely evacuated; and, throughout the case, accumulations of feculent matters or acrid secretions should be prevented, by the use of castor oil, magnesia, or some other gentle cathartic.

As, in almost every instance, there is more or less acid in the stomach and bowels, the frequent administration of alkaline medicines will be found highly useful. I am much in the habit of prescribing the alkaline infusion, prepared according to the formula of Dr. Physick, from hickory ashes and soot. When symptoms of acidity present themselves, this preparation, diluted so as to suit the palate of the infant, may be given in the dose of a tea-spoonful every two or three hours, in alternation with the antispasmodic medicine which may be in use at the time.

The accumulation of flatus has been mentioned as a trouble-

* The proportions which I generally employ are, of the oil of amber and laudanum, each, a tea-spoonful; of the olive oil and brandy, each a table-spoonful.

some attendant of the complaint. This symptom is often greatly relieved by the antispasmodics before recommended: but sometimes it resists all internal remedies, and the intestines become so much distended with air, as to be rendered almost incapable of their usual peristaltic action. The removal of so powerful a cause of irritation is absolutely necessary for the preservation of life. For this purpose I generally employ the dry syringe; by which the air may sometimes be readily abstracted, and the abdomen reduced to its natural size. In a case which I attended in consultation with Dr. Wood, and in which the infant was brought to the lowest possible condition, short of dissolution, the happiest effects resulted from the use of this instrument. The tympanitic state of the bowels was immediately relieved, opportunity for the continued action of the proper remedies was thus afforded, and the life of the child preserved.*

Another object of attention, so obvious as hardly to deserve particular notice, is the condition of the gums. These, if inflamed, should be freely lanced, and the operation repeated whenever the wounds heal, so long as the continuance of the inflammation may render it adviseable. As recommended in a former communication, on the subject of cholera, blisters should be applied behind the ears, and kept open by stimulating dressings. In one instance of dangerous convulsions, in which the intestinal disorder appeared to be aggravated, if not altogether maintained, by severe and obstinate inflammation of the gums, great relief was obtained by the application of leeches to the cheeks. The soreness and tumefaction of the gums, which had been excessive, abated almost immediately; the affection of the bowels gave way before the remedies which it had previously resisted; and the convulsions disappeared with the cause upon which they depended.

I will close this account of the treatment by a few observations on the subject of diet. It is manifestly necessary that all articles

* Sometimes the simple introduction of the point of the tube up the rectum answers the purpose; the air escaping by its own elasticity. Sometimes it is necessary to exhaust the air by repeatedly withdrawing the piston of the syringe, and thus creating a vacuum in the body of the instrument, which can be supplied only by the flatus from the bowels. Relief, however, cannot always be obtained in this way.

of food which have a tendency to produce flatulence, or otherwise irritate the bowels, should be carefully avoided. The farinaceous articles, and animal food of easy digestion, are suitable; and the breast may be allowed when the nurse or mother is perfectly healthy. Sometimes the constitution of the mother is such, that her milk disagrees with the infant; and, when this can be ascertained, or is strongly suspected, it is proper that a healthy wet-nurse should be procured as a substitute. In a respectable family of this city, I was called successively to two of the infant children, affected with convulsions from intestinal spasm, of whom the first recovered, but the second died. Having some reason to attribute the complaint to the milk of the mother, I advised that, upon the birth of a third child, a wet-nurse should be immediately provided. My advice was attended to, and the next infant entirely escaped the disorder. In all cases, when the child is allowed to take the breast, the mother should be directed to regulate her diet, and to avoid especially all acescent and flatulent food.

In illustration of the preceding statements, and in order to present, in one view, a connected account of the symptoms and treatment, I will give the details of a very interesting case, which occurred to me in the year 1818.

Case.—The subject of this note was a remarkably fine boy, aged about nine months. Before I saw him he had been affected with several convulsions, which came on suddenly, and were of short continuance. After one of these attacks he was brought to my house. Finding his gums inflamed and his bowels constipated, I lanced the former, and directed the latter to be freely opened. I also directed the lac assafœtidæ to be given internally, and the spine to be bathed with garlic and brandy. Shortly afterwards I was called to see him in the night, in consequence of his having two violent convulsions in pretty quick succession. I found him with a cool skin, and a blue appearance about the mouth; but evidently with a clear intellect. Almost immediately upon coming out of a fit, he appeared to know those to whom he had been accustomed. As his pulse was somewhat tense, I bled him freely, so much so, indeed, that he fainted under the operation. Soon after his revival, he was attacked with another fit, which, on his being put into the warm bath, subsided in two minutes. Upon ad-

ministering some lac assafœtidæ, I observed the escape of flatus from the stomach; and that the child suffered great pain, was manifested by his stiffening himself, and screaming very frequently. I therefore gave him an enema of assafœtida with nine drops of laudanum; and upon leaving the house directed, that if this should not afford relief, one drop of laudanum with a little assafœtida should be administered every two hours, till he should become easy. I also recommended that a large spice plaster should be placed upon the abdomen. The subsequent part of the night was passed more comfortably: but about day-break he had another convulsion, which was said to be more violent than any of the preceding. He was again put into the warm bath; and a medical friend, who remained with him during the night, gave him a mixture consisting of one drop of laudanum, four drops of the spirits of hartshorn, and a little magnesia, and applied a pair of blisters to his legs. In the morning, I again saw him, and being impressed with the conviction that much of the mischief depended upon acid in the stomach and bowels, I directed a tea-spoonful of the alkaline infusion to be given every two hours, and the mixture above mentioned to be repeated at the same interval, if the child should be in pain. Under this treatment, united with the external application of oil of amber along the spine, and of laudanum and brandy to the abdomen, he passed the day with more comfort, not having to take the laudanum oftener than two or three times. On repeating my visit I was encouraged by finding that his skin was becoming warm, and his face somewhat flushed. These symptoms were favourable, as they indicated a determination from the internal organs, towards the skin. On the morning of the following day, I was sent for early. One slight convulsion had occurred about midnight; and from his restlessness, another was apprehended. I watched him closely, and listened to his language; for infants have a language, and happy is the physician who has studied and understands it. I thought I could gather from his mode of expression, that the pain had left his bowels; but that he was very uncomfortable and thirsty, and that a little cold water would afford great relief. I accordingly gave him some. He took it with avidity, appeared to be refreshed, and in a short time sunk into a pleasant sleep, which continued most of the morning. In the afternoon he again

became uneasy and fretful, with his skin warm, and his face flushed. The cool water was renewed; and as the air appeared to refresh him, I directed that he should be carried out into the yard, where he soon fell asleep. I mention these facts to illustrate the importance of attending to the signs by which infants express their wants. Much suffering, and perhaps some aggravation of the disease, were in this instance avoided by the very simple remedies of fresh air, and a little cool water. During the day, his gums were lanced, and he took a dose of castor oil. The night was passed comfortably, and without convulsions. Next day, however, he was repeatedly threatened with them, and I found it necessary to administer some powerful antispasmodic. The musk julap was preferred. A dose of this, containing rather less than a grain of the musk, was several times repeated, with very great success. In addition, the bowels were opened by an injection of oil with fennel-seed tea, a spice plaster was placed over the abdomen, and the liniments before mentioned were freely applied. By these means the threatening symptoms were removed, and convulsions warded off; nor did he afterwards experience an attack. Throughout the case the breast had been denied him; as the mind of the mother was greatly agitated, and I feared that, on this account, her milk might prove injurious. But as she was now more composed, and as she had for several days confined herself to a strict animal diet, I allowed her again to suckle the child; nor did any unpleasant effects result. Two of the other children were, about this time, attacked with catarrhal fever; and I was exceedingly alarmed at finding my little patient, after having already suffered so much, seized with violent symptoms of the same disease. It came on him with a chill, which was succeeded by a hot skin, an active pulse, and extreme difficulty of breathing. I do not know that I have ever witnessed a case more alarming and apparently dangerous. Much relief, however, was procured by bleeding and an emetic of ipecacuanha. A purge of calomel was afterwards given, followed by small doses of the sweet spirits of nitre and antimonial wine. By the occasional use of the warm bath, by bathing the abdomen with laudanum and brandy, and by strict attention to the state of the bowels, we endeavoured to counteract any disposition which might exist

to a return of the convulsions. Under this treatment the child gradually improved, and in the end completely recovered.

It must be evident from the above details, that a proper diagnosis of this disease is of the utmost importance; and that treatment founded upon the idea that the brain is the part principally affected, will in all probability eventuate in failure. It is also important to understand that these convulsions may occur in infants predisposed to them, during the continuance of another disease: the usual remedies for which will by the new state of things be rendered highly injurious. A case illustrative of this fact occurred to me in the year 1822. The infant was attacked with croup, for which I prescribed the ordinary remedies; such as bleeding, a blister to the throat, calomel, antimonial wine, seneca, &c. Under this treatment the symptoms of the disease had begun to subside, when the child was suddenly seized with severe convulsions. Evident signs of pain in the abdomen were presented; and the state of the stools indicated the existence of acid in the bowels. I was convinced that the convulsions had their origin in intestinal spasm, and, under this impression, immediately laid aside the internal remedies I had prescribed for the croup. In their place I directed the lac assafœtidæ, both by the mouth and rectum, the alkaline infusion, and the warm bath. The back and abdomen were frequently bathed with the liniment of oil of amber, laudanum, &c.; and poultices containing the oil of amber were applied to the feet. A surprising change for the better ensued, and the child happily recovered.

As closely connected with the subject of this paper, it will not be improper to notice another effect of spasm of the bowels, which is liable to be mistaken for disease of the brain. I cannot do this better than by communicating the following brief account of a case which fell under my attention. The child was affected with dysenteric symptoms, and in the progress of the disorder became delirious. By the usual treatment these symptoms were relieved, and I considered my patient convalescent. In a short time, however, a change for the worse took place. The bowel affection returned, accompanied with the most distressing derangement of the mental functions. The child was completely maniacal, showing a disposition to snap at and bite, like a dog,

whatever approached it. My attention was very naturally directed to the head; and I concluded that some serious cerebral disease must have occurred, to give rise to such a train of symptoms. But the measures suggested by this view of the nature of the complaint were wholly ineffectual; and the little sufferer expired. Having obtained permission to examine the body, I opened the cavity of the cranium, and was surprised to find scarcely a vestige of morbid action in the brain. Within the abdomen, however, were discovered marks of violent spasmodic disease. The small intestines through almost their whole extent were irregularly contracted, in many places being diminished, for an inch or two in length, to the size of a worm, in others appearing as if tightly embraced by a ligature. I have no doubt that in this case the maniacal symptoms were the result of excruciating pain arising from violent spasm in the bowels.

On the whole it may be concluded, that the subject of intestinal spasm, involving, as it does, such dangerous consequences, is of the highest interest and importance; and that it more especially claims our minute attention, as, from the delusive nature of the symptoms sometimes presented, and our inadequate means of information relative to the feelings of the patient, we are liable, without much care, to be led into mistaken judgments, and to adopt inefficient if not injurious modes of treatment.

ARTICLE V.—*Cases of Fevers, illustrative of the benefit to be derived from the application of Leeches to the Epigastrium, and from Demulcents, agreeably to the method of Dr. Broussais;* in a letter to one of the editors of this Journal; by CASPAR MORRIS, M. D., one of the House Surgeons to the Pennsylvania Hospital.

I HOPE my reluctance to comply with your request, to furnish you with the observations that had been suggested by such cases of fever as had come under my notice, will not be attributed to any indisposition to oblige you, but solely to my wish not to commit myself by the expression of any opinion, built on so slight a foundation as the little experience I have hitherto had, will afford. As regards the doctrines of the school of BROUSSAIS, I have

not yet been able to bestow upon them that time and attention which they demand; but so far as I have been made acquainted with the practice predicated upon them, it is one so consonant with reason, and which has received so much support from experience, as to merit farther trial.

I had for some time been impressed with the belief that the common practice, in the latter stage of fever, when the tongue becomes dry and black, with stupor, or low muttering delirium, was one calculated still further to oppress the energies of the system: and in this I am confirmed by observing that very few who thus sink recover, though dosed without intermission with the most powerful stimulants; and, though I do not believe, with some of the more ardent admirers of our sacred calling, that the science will one day arrive at that state of perfection that no outlets from life shall be found, other than accident and old age, neither can I reconcile it to my conscience to adopt the usual explanation of unhappy terminations of disease, that "it had become so deeply rooted as to defy the resources of medicine." Such views cannot be sufficiently reprobated: by them exertion is paralysed, and a grave is opened, in which, with his patient, the physician may bury all his errings, and conceal even from himself his own deficiencies.

Actuated by such feelings, but unprepared to deviate from the path marked out by those, to whom years and experience had given the power to guide such as, like myself, were just entering upon the practice of the profession, I was called to see the following case, which is thus noticed at the time in my case book.

Case 1st. John M'Leery, a labouring man aged 50, accustomed to drink, but rarely to intoxication, was admitted into the hospital, 8th month 12th, 1826. Has been sick 12 days without medical attendance.

Symptoms.—Anorexia—hot skin—tongue furred, yellow—bad taste in his mouth—tenderness at epigastrium, amounting to pain during frequent paroxysms of hacking cough with which he is much troubled—respiration short and quick—bowels costive—pulse soft, rather full and quick.

Treatment.—R. Magnesiæ vitriolat. ℥iss. Aquæ Oss m. Sig. ℥ij. quaq. hor. capiend, ad purgat. procur.—To drink freely of barley

water, acidulated with lemon juice.—Applied blister over region of stomach.

13th. Salts have operated gently. Blister has not drawn. Less tenderness at epigastrium, and some diminution in heat of skin. Pulse unaltered.

14th. Saw him in the morning, when he was nearly as yesterday. Directed him to resume the salts, and to use the neutral mixture. I was absent during the afternoon; when he became comatose, with dry tongue and feeble pulse; for which he was directed to take carb. ammon. gr. v. every hour, together with the free use of wine whey. This treatment was continued throughout the night.

15th. Skin cold—tongue dark brown and dry—great disposition to sleep—bowels costive—pulse feeble. Directed the use of hot wine whey. Discontinued carb. ammoniæ. In the evening the stupor was increased; and, in my absence, the carb. ammon. was resumed, and sinapisms applied to his feet.

16th. Skin warm and moist—pulse soft and weak—tongue yellow and moist—stupor—involuntary evacuation of urine—tympanitis—bowels costive.

Applied dry cups to head. Enema of turpentine. Continued wine whey and carb. ammon. In the afternoon, as he still became weaker, with increased stupor, brandy toddy was substituted for wine whey, and turpentine julap was given in alternation with carb. ammoniæ. Applied a blister to the epigastrium.—Evening: Skin hot and dry—pulse weaker—unable to project his tongue.—Blister has drawn. Ordered the head shaved and a blister to be applied to it, and one to each leg.

Died early on the morning of the 17th.

Having, during the progress of this case, read a part of Broussais's Treatise on Chronic Inflammations, I resolved on a thorough examination of the body; in which I was assisted by Dr. Samuel Jackson. The following notes were made at the time.

Examination seven hours after death.

External appearance.—Body fat. Skin yellow.

Abdomen.—On opening through the parietes, found the large intestines and stomach very much distended with gas. The small intestines have a mottled appearance, in some places livid, and in others of a reddish gray colour.

Stomach.—Externally has a slight blush, and contains so much flatus as to cause the great curvature to be projected forward. On opening it, it was found to contain about one pint and a half of a dark fluid, somewhat resembling syrup. On taking out the stomach and duodenum and washing them carefully, the mucous membrane was found covered with red spots, about the size of the finger's end, particularly abundant about the great curvature and pylorus, and extending into the duodenum.

Thorax.—Perfectly healthy in every particular.

Head.—Immediately on sawing through the cranium, there was a profuse discharge of venous blood. Dura mater healthy. Veins of pia mater much distended. Effusion between pia mater and arachnoid membrane. Ventricles contain a considerable quantity of bloody serum.

The unfortunate termination of this case, the evident marks exhibited, on dissection, of inflammation of the stomach and disease of the head, joined to the favourable impression received from reading the Phlegmasies Chroniques, induced a resolution to treat the next case I should see on the diluent system.

Case 2nd. James Wiegan, an Irish lad, aged 18, who had been labouring on the canal in Delaware, was admitted with fever of three days' continuance. There was much determination to the head—hot skin—furred tongue—contracted pupils—tenderness on pressure over the stomach—costive bowels.

Treatment.—Ice to be applied to head. Twenty leeches to the epigastrium. To be allowed the free use of iced barley water, acidulated with lime juice, and his bowels to be opened by cold enemata. By this treatment, the determination to the head was immediately removed; and, instead of constant restlessness, which had existed from the commencement of the disease, he became tranquil, the skin more cool, and the pulse less frequent. The treatment was continued without variation, the symptoms gradually improving till the third day after his admission, (the 6th of the disease,) when an intermission took place. Not being yet entirely weaned from my former views of fevers, I immediately resorted to the sulphate of quinine. In the afternoon, the febrile symptoms returned; and the lemonade was resumed. They went off in the morning, with a slight moisture; and the quinine was directed in doses of gr. ss. every hour. The inter-

mission of this day was a short one, and the fever returned with renewed violence. Finding this to be the case, I directed the tonics to be laid aside entirely, and the cold drink and enemata to be resumed, and applied blisters to the legs. In the morning, there was again an intermission; notwithstanding which the diluents were continued. The fever did not come on so early as on the preceding day by two hours, and had less intensity. He had slight attacks on the two following days; after which the disease left him altogether. He continued in the house about one week, using farinaceous diet; and, at the end of that time, was discharged well. During the whole time he was under treatment, there was a manifest improvement in his feelings from day to day; with the exception of the two in which he took the quinine. His bowels were freely opened by enemata of cold water.

Case 3d. Thomas Moran had been under treatment for fever for two weeks; had been freely purged, and had made use of the neutral mixture. Upon the first appearance of remission, he was put upon the use of sulphate of quinine. When I first saw him, he had a remission, amounting nearly to total absence of fever; but each afternoon he had a very violent exacerbation, lasting about 14 hours, and then going off with profuse sweating. This had continued about one week. Finding that he did not improve, and that his tongue still continued furred and yellow, I directed him to stop the use of the quinine, bled him from the arm, ʒvi, and ordered the free use of barley water. The violence and duration of the febrile paroxysms were immediately moderated, the sweating became less profuse, and his strength increased. His bowels were opened twice in the day, without the use of any purgative. In the course of three days from the time the use of tonics was suspended, his fever had left him entirely. At the end of a week, he drew my attention to his mouth, which was covered with aphthæ: for these I gave him a gargle of solution of borax, with a little honey, which very soon relieved it entirely.

Case 4th. Reuben Johnson, aged about 30, was admitted with fever. Could not learn what had been the duration of his disease. Tongue furred—skin hot and dry—bowels costive—pupils contracted—eye suffused—has had no remission. Directed an enema of cold water; bled him ʒviij; and ordered him to be put

on the use of the barley water, and to have no other nourishment. In about 12 hours after his admission, his skin became moist, and his extreme restlessness subsided. On the following morning, his skin again became hot and dry, and he was delirious. I applied cups to his head; to be followed by a blister to cover the whole scalp. Finding his delirium and fever to increase, I applied 30 leeches to the epigastrium; and, in one hour, an intermission was procured. He had two exacerbations of fever after this time; in one of which he was cupped on the epigastrium, and in the other again leeched. They were both of them mild, and of short duration; passing off with gentle perspiration. He was now allowed the use of water-gruel, and rapidly recovered. It is worthy of notice, that though no purgative medicine was given in this case, yet his bowels were so freely opened as to render an opium suppository needful, to prevent his being too much exhausted.

Case 5th. —— Davis, a labouring man, aged 50. Anorexia—tongue thickly coated—skin hot and dry—pulse feeble—headach. Had 30 leeches applied to epigastrium. Ordered cold enemata and the use of lemonade. Under this treatment, in a few days, his tongue cleaned, his appetite became natural, his skin soft and moist, and his bowels regular.

Case 6th. James Newlands. Fever of several days continuance. Tongue black and dry—bowels costive—pulse feeble—Skin hot and dry. Applied cups to the head, and directed the use of lemonade and injections. Finding the febrile symptoms unabated by the treatment, I applied 30 leeches to the region of the stomach; and, as the result, I was delighted to find a remission in a very short time, particularly of the headach, on which the cups had no effect. The remission, amounting nearly to the total absence of fever, continued 12 hours; at the end of which time, a slight febrile tendency was manifest, which did not attain any height. Continued the diluents. On the morning of the second day after the application of leeches, he had an entire intermission, free from headach or any local pain whatever, and his tongue was nearly clean and moist. In the evening there was a slight exacerbation, which was checked by cups to the epigastrium, and an enema of solution of salt. Morning.—Perfectly cool and comfortable—tongue still cleaning. Evening.—A slight exacerbation—very little headach—tongue clean, except at the

root, where it is still dark—bowels freely opened without any enema.

Morning of the 4th day after leeching.—Skin cool and soft—tongue moist and clean—bowels twice open during the night—pulse soft and natural. He now passed from under my notice, was placed on the use of tonics, and recovered.

Case 7th. James Haggerty had been ill 15 days without medical aid. Tongue furred and dry—pulse very feeble—bowels costive—skin hot and very dry—great tenderness on pressure over stomach—headach.

Applied 30 leeches, and ordered the free use of demulcents and injections. Shortly after the application of the leeches, his tongue became moist, his skin cool and moist, and the headach left him.

2nd day. Continued, as last noticed, entirely free from fever. Continued barley water, acidulated.

3d day. Tongue again dry—pulse feeble—stupor—skin hot and moist. Wine whey was directed, in small doses, and persevered in till late in the evening, without any advantage. I then, notwithstanding the weakness of his pulse, had 10 leeches applied to the pit of his stomach; and in a very short time, the stupor was so far removed as to allow of his objecting to the wine whey, declaring that it gave him pain every time he swallowed it. An obstinate hickup, with which he had been troubled during the day, was entirely removed; and blisters, which had been applied to his ankles several hours without effect, now began to produce irritation.

4th morning. Tongue moist—skin natural—pulse soft—no headach or stupor—much strangury from blisters. Continue demulcents. Evening.—No fever—tongue moist—skin perfectly natural—pulse weak but soft.

5th morning. Skin natural—slight disposition to dryness of tongue—pulse soft. In the course of the morning his skin became very hot and dry, the tongue dry, and the pulse weak, with much disposition to stupor. Applied cups to head, and took, by their means, about ʒiii of blood, without affording any relief. On making pressure over the stomach, his brow became contracted, and he moaned deeply. Applied 15 leeches to epigastrium; and by the time they were half filled, the stupor was nearly removed,

the pulse and skin became soft, and the tongue moist. Expressed himself much relieved.

Evening. Still comfortable—some little heat of skin, but no stupor—tongue moist.

6th morning. Tongue moist—pulse soft and weak—skin natural—some stupor. Directed sinapisms to extremities, and wine whey.

At this stage of the case, I was obliged to leave the city. He was placed on the use of the most powerful stimuli; and in three days, died. No examination was made.

It had been my intention to continue the notice of these and other cases, viewing them impartially, and recording the symptoms and treatment with precision and candour; and I had hoped that, from a report of the number of cases which I anticipated would claim the charity of the institution, we should have been able to form some judgment as regards the treatment of fevers. So far as the foregoing cases go, I have every reason to be satisfied with the practice adopted in them; and so favourable are the impressions I have received in behalf of the mild mode of treatment of fevers, that I shall certainly, when it shall be in my power, prosecute the inquiry still farther.

In the case of Haggerty, I was myself so astonished with the improvement in his condition, while using the leeches and demulcents, that I thought proper to have witnesses of the case; and two of my medical friends, accordingly, saw him with me frequently.

ARTICLE VI.—*A case of partial paralysis, produced by extracting a tooth.* By EDWARD PICKETT, M. D. of Huntsville, Alabama.

THE physiology of the nervous system is at present attracting so much attention, in every portion of the globe where medicine is cultivated, that every fact, having any bearing upon this interesting subject, is worthy of record. The following case being somewhat peculiar in its character, the writer is induced to offer it to the medical public, hoping it will not prove entirely unac-

ceptable to those who have more ability for physiological and pathological investigation, than himself.

Mr. L. Ingram, a young labouring man, about 24 years of age, on the 14th of last May, had the second molar tooth on the *left* side of the inferior maxilla, drawn by a neighbour, who drew, with it, the first and third grinders; so that instead of extracting one tooth, he separated three: the first and second were drawn entirely out, and the third was retained only by its attachment to the surrounding gum. On the 5th of June, I was called to see him; when I was informed that, after his teeth were drawn, he went home to his usual labour, at which he continued for a week, during which he complained of being unwell, and occasionally of impaired vision. At the expiration of the week, he walked a few miles to an uncle's, where he was immediately confined to bed. Soon after his confinement, he was bled to the amount of ℥xvi, and purged with calomel; but as he continued to grow worse, a physician was called in, who prescribed calomel in small doses, and laudanum, to allay a very severe pain in the stomach, of which he frequently complained. This, with a blister to the nape of the neck, constituted the treatment before I saw him. I found him very feeble and emaciated, free from pain—skin moist—pulse soft, small, and about 90 in a minute—gum red and swollen, but no mercurial fœtor in the breath—several dark ulcers in the roof of his mouth—tongue white and dry—and when he attempted to thrust it out, it was thrown into the *left* angle of the mouth, which was much drawn down by its depressor muscle: he could not possibly extend his tongue beyond his lips, nor pass it to the right side of his mouth. His speech was greatly impaired, and some sentences were almost entirely unintelligible. The cavity from which the first and second teeth had been taken, was filled with a large fleshy excrescence, which projected some distance above the surface of the teeth, so that he could not close his jaws, or masticate, without pain. The third tooth had been permitted to remain in its socket, though, apparently, from its extreme looseness, entirely freed from its long connexion, and held only by the gum. I immediately drew it; which he said relieved him much. The excrescence was completely cicatrized, and appeared to possess but little sensibility; as it might be explored with the finger, and moderately pressed, without any other sensation than that of "sore-

ness." It had been lanced two or three days before my visit, and I was told that a small quantity of pus had escaped. On the right side of the lower jaw, and external to the teeth, was an enlargement of the gum, resembling a common phlegmon, though solid, and possessed of but little sensibility. On its surface were two small excoriations, from which a bloody serum issued upon pressure. He complained of "dulness" and "deadness" on the *right* side of the face, particularly about the angle of the mouth, and on the same side, the depressor and levator anguli oris seemed to be completely paralytic. Previously to my seeing him, he had suffered much from paroxysms of pain in the region of the stomach; which would pass very suddenly to the gastrocnemii muscles, or the brain. For a short time before I saw him, the latter had been exempt from those paroxysmal attacks, which passed alternately from the stomach to the legs. During one of these attacks, which took place about an hour after my arrival, I examined the abdomen, and found the recti abdominis so firmly contracted over the region of the stomach, and the space extending to the umbilicus, as to appear almost as solid as a board. These attacks came on at all times; but most frequently in the early part of the day and at night. They were tolerably manageable with laudanum and tincture of camphor; which would sometimes relieve them almost as soon as swallowed, or cause them to pass directly from his abdomen to his legs. He said his "appetite was good," and that his hearing was defective, though he appeared to hear distinctly. His bowels were torpid, and he was perfectly rational.

Treatment.—I gave him laudanum and tincture of camphor, to relieve his pain and spasm; and ol. ricini, salts, and enemata, all of which proved necessary to move his bowels. At one o'clock in the morning of the 6th, I was roused to see him again in a very distressing paroxysm. Gave him about ʒj tinct. opii and ʒj tinct. camph.; which mitigated his sufferings; but they still continued until his bowels were opened with injections. The purgatives brought away many hard feculent lumps, not much unlike the scybala discharged in dysentery. His discharges had previously been dark coloured, but this morning had almost a natural appearance, though still rather dark. Pulse about 90—mouth and tongue dry—the edges of the latter clean, but the centre and

back part covered with a brown fur—a slight brown incrustation on some of his teeth—breath offensive—free from pain. His head was shaved, and a large blister applied to the scalp. Prescribed a stimulating gargle of carbonate of ammonia, and weak grog; laxatives and anodynes to be continued pro re nata; a light nourishing diet, with the use of wine or toddy occasionally. Instructions were given to re-apply the blister to the scalp, after its first drawing, should the patient survive. I find that, in my notes made before I left the patient, I omitted one circumstance, of which, however, I have a distinct recollection; that is, his left eye had become inflamed about the time the paralysis occurred, but was better when I saw him than it had been, though still inflamed.

I left him about 10 o'clock of the 6th; and he died on the night of the 7th; but, as he was sixteen miles from town, I had no opportunity of making any examination after death.

In this case, I was inclined to believe that, in extracting the teeth. some serious injury must have been done to that portion of the third branch of the fifth pair of nerves, which is distributed to the lower jaw and teeth. The inflammation of the eye, perhaps was the result of the impaired function in the first branch of the fifth pair, which goes to this organ: the paralysis of the right side of the tongue must have been owing to a loss of function in that portion of the fifth pair distributed to the tongue, or in the right branch of the ninth pair: the paralysis of the muscles on the right side of the face, to the loss of function in a portion of the portio dura of the seventh pair—all referrible to the original injury done to the third branch of the fifth pair.

We apprehend that, in this case, an *irritation* was propagated through the branches of the fifth pair in the left side, and that certain nerves of the opposite side were affected with *paralysis.* We do not see, in the narrative of the case, sufficient evidence to establish the point, which nerves were paralysed; but we should be most inclined to conclude, from the *generality* of the expression of "deadness" and "dulness" on the right side, that it was the branches of the fifth. Dr. PICKETT has not informed us whether the motions of the nostrils connected with respiration were deranged; by which we could have judged, according to the observations of Mr. CHARLES BELL, whether the portio dura was paralysed.

ANALYTICAL REVIEWS.

ARTICLE VII.—*An Inquiry concerning that disturbed state of the Vital Functions usually denominated "Constitutional Irritation."* By BENJAMIN TRAVERS, F. R. S. Senior Surgeon to St. Thomas's Hospital, &c. &c. &c. 8vo. 556. Longman, Rees & Co. 1826.

THE subject of irritation is daily engrossing a greater portion of professional attention; while its intricacy and importance demand great talent, attention and industry. The difficulties are numerous; but may be referred chiefly to our ignorance of the physiology of the nervous system, to inattention to the mutual connexion between morbid phenomena during life, and to a great want of precision in *post mortem* examinations. These impediments are not a little magnified by the very indefinite and indiscriminate use of the word irritation, even by the same writer, and by the inexcusable neglect of authors, in not clearly defining their technical words and phrases. We must often congratulate ourselves, if we can discover an author's meaning, after we have finished his work.

In a former number of this Journal, Vol. I, p. 158, we noticed the manner in which Mr. A. COOPER confounded local irritation with inflammation, and general irritation with fever. We stated, that the former was an affection of the nervous system simply, while inflammation and fever involved also the vascular system; and we alluded to the practical importance of this distinction. Since the publication of those remarks, Mr. TRAVERS, who is already advantageously known to the profession, has issued the large octavo volume which we are now to analyse, with the express intention of demonstrating, that irritations form "a distinct order of morbid actions, apart from fever or constitutional inflammation, and which, if we treat them in deference to the rules laid down for the treatment of fever, will utterly disappoint and mock our efforts." p. 484.

In the pursuit of this object, Mr. T. has endeavoured to ascertain, with more precision, the causes, the phenomena, and the laws of that morbid state, indicated by the term "Constitutional Irritation;" and hence, to deduce its pathological character, and scientific rules for its treatment. How far Mr. TRAVERS has succeeded, we shall afford our readers an opportunity of judging. He has certainly taken a decided step in advance of any of the English surgeons on the subject of irritation, and has furnished the profession with a most interesting and valuable collection of cases, which should be studied by every one, whatever credit he may attach to the views of our author.

In our opinion, the work might have been rendered more valuable, in a scientific point of view, if the necessary connexion between the healthy and diseased operations of the system had been more clearly indicated; and especially, if the post mortem examinations had been much more numerous, minute and extensive. We have often to regret, that the dissector's knife was confined to a limb, when death had resulted from an impression made on the great sources of nervous power—the brain, spinal marrow, &c.; for, however we may agree with Mr. TRAVERS, that the affection is "functional," yet few can, from inattention or from habit, conceive of death having occurred without *structural* derangement.

We, however, as students, but especially as reviewers, have heavy complaints to present against Mr. TRAVERS as to the choice of his words, the structure of his sentences, and the want of a clear arrangement through the whole work. The "almost inaccessible intricacy" of the subject will excuse much of this apparent neglect, and the value of the information we have derived from the perusal of this volume, has amply compensated us for our labour; but the above facts will be an apology for any misrepresentation, while we endeavour, in a very condensed manner, to present an unbroken view of Mr. TRAVERS's opinions; and, also, for deserting, in toto, his arrangement. We shall notice first, his views of the healthy human system, with the reciprocal relation of the vital functions; next, his ideas of irritability, and of local and constitutional irritation, and the principles and practice thence resulting; and finally, present as many cases as our limits will allow, in illustration of his opinions and practice.

The observations of BICHAT, and his "collaborateurs," have formed a new æra in physiology, and must be constantly regarded as the foundation of all pathological inquiries. That great genius first noticed the important division of the vital organs and functions, as they belong to *animal* or *organic* life; to each of which he believed, there was a distinct nervous apparatus; the cerebral and spinal system being given to the former, and the ganglionic, or sympathetic system of nerves, to the latter. These two lives, evidently distinct, are nevertheless so intimately associated, in a perfect animal, that the integrity of the one is essential to the integrity of the other: the brain cannot act without the stimulus of arterial blood, nor the heart continue its functions without cerebral influence; for, as Mr. TRAVERS observes, no observation has yet invalidated "the fundamental truth, that the brain, in totality, holds in dependence, immediate or intermediate, *all* the phenomena of life." p. 416. There is an inseparable connexion and dependence of the nervous and vascular systems upon each other; so that it is "impossible for either to be affected, in any serious degree, exclusively." Nevertheless, as will be hereafter shown, the symptoms of nervous disturbance will often bear no proportion to those of the vascular disease; and, on the contrary, the nervous derangements will often be excessive, yet the circulating apparatus hardly be disturbed. In all these investigations, we must bear in mind "the universal diffusion of the nervous system and its universal sympathy." The effect of an impression on one part is similar to that on another, however different in appearance may be the affected tissues; and when propagated, as is often the case, to the *whole* system, every portion of the body, however minute, suffers in the same manner, its functions or sensations being disturbed. Hence, says Mr. TRAVERS, p. 432, "Whether an injury is inflicted on the head or on the extremities; whether its effects are propagated from the brain to the limbs, or, vice versa, from these to the brain, does not materially affect the construction of such cases." There is, in these cases, a simultaneous and universal disturbance of the nervous system, which involves, sooner or later, the general and the capillary circulation. This disturbance of the whole medullary apparatus of the nerves, Mr. TRAVERS terms "*functional*," as distinguished from "physical," or "*organic;*" which we notice the more particular-

ly, as the French evidently employ the word "*organique*," to denote *functional*, as well as "*structural*," derangement. The English confine it to the last sense.

The views above presented appear to be those adopted by Mr. TRAVERS; perhaps, however, a little extended. But he is not prepared to carry these principles into their details, and to assert, with an increasing portion of modern physiologists, "that contractility (irritability) is a distinct and specific principle, independent of any mode of sensation."—p. 419. We must, however, believe, that an assent to this proposition would have assisted him in many of his difficulties, and that it will be found, not only true, but useful; that a distinct vital property, or principle, by whatever name it may be known, belongs to each of the two lives, animal, and organic. That the sensibility and the irritability of a part, (the animal and the organic sensibility of BICHAT,) however mutually dependent, and however involved with each other, are different properties, connected with a different organization, existing under different circumstances, and often giving origin to phenomena totally distinct.

Hence, irritation should not be confounded with sensation; nor the existence of pain in a part be invariably associated, as it is in the minds of very good pathologists, with the idea of inflammation, or, at least, of increased vascular excitement.

Our concern at present is with irritation; but as Mr. TRAVERS has not adopted the above distinction, we must be excused, while presenting his views, in confounding the two affections; which, indeed, under any circumstances, is often unavoidable.

"Every part of a living animal has its peculiar function, to the performance of which, it is incited by an appropriate stimulus. Its susceptibility of the impression of such stimulus, is denominated its *irritability*."

This property exists in every organ, and is not confined to any particular form of organization, as nerve, muscle, or blood-vessel. It is manifested by signs which vary with the function of the organ: in some, by sensation, in others, by motion; in some, by a combination of these, which is often not cognizable by our powers of perception, and of which we discern only the effects. "Irritability, then, is an inherent property of the living system, and is not only indispensable to the functions of those organs by which

life is maintained, but is the earliest and latest indication of life." When there is no irritability of the vital organs, life is extinct.

Every organ of the body has its peculiar, or appropriate, portion of irritability, during health; so that its functions are executed, and the harmony of the system is preserved. This portion of irritability is, therefore, essential to the well-being of the system; but when, from causes internal or external, it becomes augmented, diminished, or perverted, the health is disturbed. Healthy, is thus converted into morbid, irritability. Every one understands what is meant by an irritable eye, by an irritable mind, stomach, &c. There is a preternatural susceptibility to impression, even from natural and appropriate stimuli. This is often true of the whole nervous system;* in which case, we, with propriety, speak of an irritable habit, or an irritable constitution.

This morbid irritability is *proper*, that is, the direct result of an impression on a part; or *sympathetic*, arising, secondarily, from an irritable condition of another organ; thus, worms in the intestinal canal may produce a temporary blindness. Let it be remembered, that this sympathy takes place between the mind and the body; the one often deranging the other. But each may be singly affected;—a man may lose his senses, from terror, while his corporeal functions remain perfect, and, on the contrary, a limb may be wrenched off, and the patient may die in twelve hours, preserving his mind to the last.

Sympathetic irritability is *direct*, as between organs served by branches of the same nerve; or *circuitous*, as between remote organs, through the medium of the brain; and it is often *universal*, the entire system sympathizing with local injuries, or diseases; that is, as far as we can understand Mr. Travers, the entire nervous system, in some cases; in others, the whole vascular and absorbent systems, being also involved.

Mr. Travers adopts the views and language of Mr. Hunter; who defines an irritable habit to consist in "an increased disposition to act, without the power to act with." And again, as "over-action to the strength of the parts." Mr. T. observes, "that extreme susceptibility, and consequent over-activity, are

* This proceeds on the presumption adopted by Mr. T., and by physiologists generally, that irritability is dependent on the nerves.

invariably coupled with, and most probably depending on, weak and insufficient powers of constraint and resistance." And again, "a weak organ, or constitution, is one easily disturbed, and put out of order; because it is continually excited to greater activity than it has power to support; greater, therefore, than is consistent with the harmony of the system."—p. 13, 14.

Hence it appears, that weakness, in the opinion of our author, implies irritability; at least, the former is necessarily followed by the latter: and, moreover, that an irritable nervous or vascular system may be as well marked as an irritable stomach or skin. This last proposition is practically acknowledged by every one who admits, that some individuals are more easily acted on than others; and that an accident, trivial to some patients, will be exceedingly severe, and even fatal, to an irritable system. Mr. TRAVERS adduces several cases illustrative of these ideas; and notes various circumstances, which will render the constitution irritable; such as an irritable mind, exhaustion from pain and spasm, confined situations, intemperance, pregnancy and lactation, organic disease, simple confinement, &c. &c.

Such are Mr. TRAVERS' views of irritability, as a principle of health, and also as manifesting morbid phenomena. When any extraordinary impression is made on the irritability of a part, or of the system, the altered condition of the part, or of the system, is termed *irritation;* which is, therefore, local, or constitutional. Irritation is an affection of the nervous system, and, therefore, different from inflammation, which belongs to the vascular. So, also, general irritation is distinct from fever, although their relations are as intimate as those of the two systems, nervous and vascular.—Vide p. 39, 40, also p. 482, et seq.; to which we must refer our readers; although the history of irritation, whether we regard it as an excited or depressed state of the system or part, will fully vindicate the propriety of distinguishing it, pathologically and practically, from inflammation or fever; a distinction, however, which our author has not always kept in remembrance.

Local irritation is indicated,

First, By an alteration in the proper and habitual sensation or function of a part.

Secondly, By pain, unattended by any other sign of inflamma-

tion; of which, many examples may be given, especially from the neuralgic affections, and in diseases of the brain and stomach.

Thirdly, Inflammation may result from an irritation which is acute and permanent.

Local irritation, Mr. T. considers as terminating in resolution, in local inflammation, or in constitutional irritation: this last being "*indicated by a propagation or extension of the irritation to the great sources of nervous energy, and from them to all parts of the system.*"—p. 44. This sentence in italics, appears as one of the most definite expressions of Mr. TRAVERS's idea of the constitution, and of constitutional irritation.

This constitutional irritation is the main object of inquiry; and is arbitrarily divided under two heads, *direct* and *reflected*.

Direct constitutional irritation is that state of the system which is wholly and immediately derived from the part, and in the production of which, the constitution has no share. Reflected irritation, on the contrary, originates in a peculiar morbid state of the constitution, is occasionally purely idiopathic, and, although the local irritation may give birth to it, yet is more frequently the cause, than the consequence, of the local action.

The present work is entirely occupied with the exemplification of the direct or sympathetic constitutional irritation. The examination of reflected irritation, Mr. T. reserves for another publication.

Mr. TRAVERS adduces a very large number of valuable and interesting cases to illustrate the condition of the system to which he gives the name of irritation; and observes that

"The symptoms of direct irritation indicate a depression or failure of the functions essential to life, either pure and progressive, or marked by alternations of excitement. The first, prostration without reaction, supervenes upon a degree of shock, so intense as to destroy the irritability of the vital organs. The second, prostration with excitement, is the result of a less abrupt or intense degree of shock, and indicates a greater degree of vital power, the excitement being a partial evidence of the unexhausted irritability of the vital organs."—p. 64.

Again, at p. 454, he says,

"I have called this state 'prostration.' It is a state not actually amounting to, but threatening or nearly approaching a cessation of vital action."

And again, at p. 476, speaking of prostration with excitement,

that is, where some reaction ensues after a severe functional shock has been received by the system, he observes:

"The name which I have given to this state sufficiently conveys my opinion *that it is based in debility.* The energies of the system are diminished in proportion as the actions are increased in cases of excessive reaction."

The cases adduced as the foundation of these opinions are those caused, 1st, by sudden, extreme, and unremitting pain, and certain affections of the mind co-operating with bodily disease; 2nd, by injuries and operations of various kinds; 3d, by inflammation; 4th, by exhaustion from hæmorrhage or colliquative suppuration; and 5th, by poisons, animal, vegetable, or mineral. All these, and perhaps many other causes, when sufficiently intense, will affect the whole nervous system, paralyzing it more or less completely; so that death will result, often without any symptom of excitement, forming "prostration without reaction:" but sometimes reaction is more or less marked, forming the "prostration with excitement."

"I should thus epitomize the symptoms indicating the two forms of prostration:

"1. Prostration without reaction is marked by universal pallor and contraction of the surface, shuddering, very small and rapid pulse, astoundment of the mental faculties, generally a dilated pupil, shortened respiration, dryness of the tongue and fauces; indistinctness, and at length cessation of the pulse at the wrist, stupor, oppressed and noisy respiration, coldness of the feet and hands, involuntary twitchings, relaxation of the sphincters, confirmed insensibility, stertor, and death."—p. 406.

"2. Prostration with excitement is marked by signs of languor, and stupor or drowsiness in the commencement; to which, after a variable interval, succeed rigor, præcordial anxiety, restlessness, jactitation, a rapid and bounding pulse, oppressed respiration with frequent attempts to sigh, flushed countenance, contracted pupil, dry heat of the skin, parching thirst, rejection of liquids taken into the stomach, incoherence and wildness of expression, sometimes amounting to fierce delirium. This state is succeeded by exhaustion; marked by somnolency, a profuse chilly and clammy sweat, a haggard and livid aspect, a small irregular or fluttering pulse, innumerably rapid, panting respiration, passive convulsions, hickup and subsultus, the stupor and stertor of apoplexy, and death."—p. 407.

We have made this quotation that we may fairly present our author's views of the nature of constitutional irritation. Like morbid irritability, it is associated with weakness; for it always implies a loss of power. It is a state of system very analogous

to that which occurs in syncope; as Mr. TRAVERS endeavours to exemplify at p. 465, 6, 7; and also to that observed in *pure* concussio cerebri, where there is a mere functional derangement, but no structural alteration in the brain. This parallel is run, with much ability and truth, at p. 430, et seq.

In accordance, therefore, with the views of Mr. TRAVERS, irritation, local or general, might be defined a partial suspension of nervous power and influence; and is, therefore, to be always distinguished from inflammation or fever. "Fever requires, and as Mr. HUNTER justly observes, shows, powers of resistance." p. 493. "The general character of inflammation is power; that of irritation weakness:" p. 543; and the treatment of the two affections confirms these views. Irritation, simply considered, demands the diffusible stimuli, internally and externally exhibited, "to rally the flagging power, and restore the natural harmonies of the system," (p. 455) as imperatively as inflammation requires evacuating measures. The great difficulty exists in the management of those cases in which irritation and inflammation are combined, as cause or effect; for the nervous and vascular system, on which they are respectively dependent, are so intimately associated, that the two affections, in reality distinct, cannot remain long uncombined. These are the cases which test the skill of the practitioner, which embarrass our pathological reasoning, and often bid defiance to the best directed efforts of our art.

Under the pressure of these difficulties, the profession will no doubt be benefited by the appearance of the present work, imperfect as it necessarily must be; and it will hence be useful to notice, more particularly, the pathology and treatment of direct constitutional irritation, as presented by Mr. TRAVERS.

The first form of irritation is a "state of prostration without reaction;" being the direct result of a powerful impression made on the nervous system, under which the vital powers sink. Examples are frequently seen from gun-shot wounds, from burns, &c.

From these and similar causes, there are frequent instances of death, either immediate, or after the lapse of a few hours, or days, or even weeks, "which admit of no other explanation, according, in any degree, with the history and symptoms of the malady, than a suspension or failure of the nervous powers." The local irritation is propagated to the brain, as the source and cen-

tre of nervous power; and hence, every other organ has its functions impaired or destroyed. The first and most palpable evidence of impression, is on the heart: every thing denotes diminished circulation—such as a small and very feeble pulse, languor, paleness, coldness, &c. The blood no longer excites the heart to action, and the lungs also lose their irritability or susceptibility to impression. In these extreme cases, death results at once. p. 431. In other cases, life continues longer, but with every evidence of prostration in all the organs of the system, as well as in the vital. In the stomach, there is nausea and loathing of food, from a depression of nervous energy; and nausea is not only a consequence, but a never failing source of nervous depression. "The universal sympathy is in no organ more strongly exemplified than in the stomach; as is proved by the instant nausea preceding faintness from remote and transitory causes." Vomiting often affords relief to the system, by facilitating reaction. Vomiting, however, results from the depression of the nervous power; for, "*in muscular organs, morbid sympathy shows itself in extraordinary action;*" hence palpitations, hickup, vomiting, dysphagia, dysuria, cramp and spasm. p. 469, 470. In the instance of vomiting, the quantity and quality of the secretions contribute to its production. Hickup is a spasmodic affection of the diaphragm, and is a more advanced and decided symptom of prostration.

"When of an aggravated character, I have not known it arrested, scarcely alleviated, by any remedy. Its continuance seems to depend, like that of vomiting, on the absolute exhaustion of nervous energy; *the presence of which, be it remembered, is as necessary to repose as to action—to control as to incite.*"

This is a very explicit declaration of a principle which has not been much attended to by late pathologists; and which, if true, (and we believe it to be so,) will limit, to a considerable extent, the use of evacuating remedies. Frequently, bleeding will excite convulsions, and stimuli will restrain them.

Enough has now been said to exemplify the state of prostration without reaction, and the condition of the vital organs which necessarily results. If the shock should be simply functional, and as the argument supposes, "unattended by hæmorrhage, or by the læsion of any vital organ," cordial drinks, and the diffusible stimuli,

as ammonia, ether, camphor, &c. &c. with warm and gently stimulating enemata, are the obvious internal remedies; while the external sensations and the capillary circulation are to be roused, by artificial heat, and stimulating embrocations to the surface, especially to the epigastrium. If these are productive of advantage, some nutritious articles, as the farinacea, the yolk of an egg, jellies, &c. are to be substituted for the cordial drinks.

Two points are to be kept in mind: 1st. To maintain action, and 2ndly. Not to force action.

"We are maintaining action upon inadequate power; in the hope, that the natural resources may come to our relief, and that we may gradually diminish stimulus, and increase nutriment, which is our only method of raising power to a balance with action." p. 458.

Hence, every thing depends on the judicious application of stimuli; which should always be made by the surgeon himself.

Purgatives ought not to be given, until the circulation is restored and pretty steady: then a spoonful of oil will suffice. These articles, while depression continues, will aggravate the mischief, by disturbing the stomach, whose sympathies are so important.

Of course, with his views of the nature of irritation, our author enters a decided protest against the indiscriminate use of bloodletting after recent injuries, with the view of relieving congestion:* but we are not prepared to second the following condemnation of opium, in cases of prostration.

"Whether the congestion of the cerebral circulation in prostration proceeds from deficient action, or from determination, the tendency of opium is to increase congestion; opium, therefore, appears to me to be inadmissible." p. 462.

Mr. Travers condemns its use in prostration from burns, in which it has been much employed; but he has lost sight of the stimulating powers of opium, which appear to us eminently adapted to this state of the system. Mr. Benjamin Bell observes, that the stupor of the patient is relieved, not aggravated, by opium: and Mr. S. Cooper regards it as the best preventive to convulsions, which are so often dangerous and fatal.

* Vide our April number, for a valuable paper by R. Coates, M. D. on this subject.

When the circulation is roused by the stimuli, these must be lessened or omitted. "Since power is deficient, we must carefully husband our only resource, and not waste it in inordinate action." Reaction from over-stimulation is very dangerous. This forms the second division of irritation, "Prostration with excitement, or with excessive reaction."

"Reaction may be gradual, and restorative of a natural and tranquil state of the system, as exemplified in an ordinary fainting fit; or it may be irregular and violent—in fact, an action unsupported by sufficient power to maintain and carry it through; and in this case, the state of exhaustion into which the patient lapses, quickly terminates life. Symptoms of excitement are intermingled with those of an opposite description; an effect sometimes attributable to the over-stimulation of the system. The sudden accession, the imperfect development, not less than the abrupt termination, of the symptoms, broadly distinguish this ephemeral excitement from that of continued irritation; and evince that the former, like the lighting up which often precedes natural dissolution, is a genuine feature of that state of universal atony of the nervous system, subject to preternatural excitation, which I have termed 'Prostration with excitement.' This partial reaction is distinguished, by its short-livedness, and the non-attainment of a permanent condition, from that in which, reaction being complete, the more determined and durable character of the symptoms which supervene, implies that it is the result of a positive and continued irritation." p. 475.

From the name given by the author to this state of the system, prostration with partial or excessive reaction, his idea of its nature is evident. "It is based in debility. The energies of the system are diminished in proportion as the actions are increased, in cases of excessive reaction." p. 476. "Deficient and excessive reaction equally indicate weakness." p. 489.

This state often results not only from accidents, from colliquative suppuration, loss of blood,* &c., but also from local inflammation, when the powers of the system are impaired. Mr. Travers distinguishes several conditions of the system, resulting from local inflammation, which every one will observe in practice, however he may accord with the pathological views of our author.

"*Sympathetic fever* is a healthy reaction of the constitution without any impairment of its powers, such as they are, shown in the increased energy

* Vide review of Hall's Essay on "the Effects of Loss of Blood," in our April number, article *Medico-Chirurgical Transactions.*

of the vascular system. If the natural powers of the constitution be deficient, the fever assumes the *low or typhoid character*, and, in its progress, gives out indications of the disturbance and distress of the nervous system, from its inability to support the increased action of the vascular; but the nervous affections are secondary, strictly symptomatic of the *fever*, whatever be its origin."

But sometimes the nervous affection, that is, irritation, is primary, and destroys the fever if it exist, or precedes its occurrence.

"In certain forms of injury, certain constitutions, and modes of treatment, the inflammation is an irritant, and gives rise to a disordered action of the entire nervous system, which takes the *precedence*, or *place of fever*. Such a state of the system reacts upon the part, and either checks or destroys the restoring process; while a state of exhaustion, or what Mr. Hunter calls 'dissolution,' abruptly closes the scene on the fifth, tenth, or fifteenth day." p. 495.

The *Treatment* of "prostration with excitement" is one of great doubt and difficulty. "The confusion resulting from the rapid alternation of the symptoms usually denoting contrary states of the system, and the urgent conviction that death must speedily ensue, if this tempest be not assuaged, perplex the judgment of the practitioner." p. 477.

The commonly prescribed remedies of the schools, says Mr. Travers, are totally inadequate under these circumstances, where there is the greatest disparity between power and action. "The heart is rather thrilling than fairly pulsating; its semi-contractions are innumerably rapid; the expression is by turns excited and oppressed, wild and comatose; the breathing short, and wanting the relief of sighs. A continued exertion of reason cannot be maintained; and after a correct reply or remark, the patient wanders into irrationality." p. 477.

Hence, variety in the treatment is required; and Mr. T. observes that "experimental measures supported by any fair hypothesis should be encouraged." When the excitement is considerable, cold applications should be made to the shaved scalp, a large blister to the nape of the neck, and the bowels cleared with pills of calomel and jalap, or scammony, provided the stomach is not disturbed; otherwise, by stimulant and purgative injections. The continuance of this course requires much circumspection, as this state of excitement often shifts suddenly into that of sinking. p. 478. Of course the use of the lancet is inadmissible; and at p.

495, Mr. TRAVERS cautions us, even in sympathetic inflammatory fever, against the too free use of evacuants, lest the powers of the nervous system might yield, and prostration be substituted for fever. "Nervous power is much more easily depressed than raised. Irritation is a very possible result of treatment as well as of malady; for by such means as too rapidly lower, we incur the danger of converting inflammation into irritation, and thus of destroying our only medium of recovery." p. 496. And of course, when prostration exists, however great the excitement, all "the appropriate remedies for high inflammatory fever are calculated to aggravate, in an alarming degree, the symptoms of irritation." p. 500.

But, says Mr. T., the main question is, Should opium be administered in this state? which he decides affirmatively; as he has witnessed even the highest degree of symptomatic delirium yield to the administration of opium. It requires, however, full doses, in the high excitement of irritation, to affect, and much more to control, the nervous system. In the low muttering delirium which accompanies sinking, small and frequent doses of opium, as one quarter of a grain every second hour, are decidedly beneficial. p. 479. The best substitute for opium is the henbane, in doses of three to five grains. In the over-active state of the vascular system, there is a charm in the operation of henbane altogether peculiar, although its anodyne and soporific powers are feeble.

We have thus endeavoured, in as succinct and perspicuous a manner as possible, to present Mr. TRAVERS's view of irritation, with his practical deductions; and we have no doubt of their beneficial tendency. But it is to be regretted, that as the strongest minds are influenced by names, as well as by facts, he had not employed some other word than irritation for the state of the system here contemplated. Irritation, in the works of the best pathologists, is invariably associated with an excitement, with an erethism of the tissue or system concerned; and should not, therefore, be employed to express a directly opposite state of the constitution or part, where the irritability is prostrated, and true irritation, or nervous excitement, often cannot be induced. Irritation may be regarded as the proximate cause of inflammation, and also of inflammatory symptomatic fever;—Ubi irritatio ibi fluxus.

But Mr. T. cannot assent to this; for inflammation implies power, and irritation, according to him, weakness; and yet with, we may say, a necessary inconsistency, he speaks of irritation terminating in inflammation, provoking the act of inflammation, &c. We forbear further criticism; acknowledging the difficulty of the investigation, and grateful for the information imparted. Before, however, we separate from Mr. T., we must notice some of the numerous cases, adduced as illustrating the symptoms and the varieties of "direct constitutional irritation," and which many will regard, decidedly, as the most valuable portion of the work. Our space limits us to a few of the most important, from the several causes already detailed at p. 79.

Previous to these details, the following proposal of Mr. GEORGE YOUNG deserves to be recorded, as practically important, and as exemplifying a principle of Mr. TRAVERS, that continuous inflammation is most frequent in persons who incur injuries or undergo operations, in a state of health.

"A healthy carman, says Mr. YOUNG, came under my care, with a loose cartilage in the right knee joint. It had several times occasioned him to fall suddenly; and he was very anxious to submit to an operation. It appeared to me very desirable to accustom him, before the operation, to the reduced diet, rest and restraint, which would be necessary after it. He accordingly kept the house. On the second or third day of his confinement, I put on the roller and bound on the back splint, exactly as I intended to do after the operation, to keep the limb perfectly steady. This confinement of the limb occasioned a restless night, some fever, a whitish tongue, a quickened pulse, a little headach, spare and high coloured urine. He was very unwilling to continue the bandage and splint; to which he ascribed (and justly) all his constitutional disturbance, and the utility of which, prior to the operation, he could not at all comprehend. This circumstance, however, forcibly suggested to me the importance of accustoming him to restraint; it was therefore continued; the excitement which it had produced gradually subsided, and when I found that the bandage no longer occasioned any irritation, I performed the operation. Not one untoward symptom arose; the constitution was not in the least ruffled, and the wound healed by the first intention." p. 37.

In *Chapter 3d*, we are presented with examples of direct constitutional irritation, as illustrating its symptoms, its varieties, its treatment, &c.

SECTION 1st.—BODILY PAIN—MENTAL IMPRESSION.

"Pain, when amounting to a certain degree of intensity and duration, is of itself destructive. Difficult and protracted parturition is, every now and then, fatal from this cause; and even in cases in which neither extraordinary difficulty nor protraction were experienced, a fatal prostration has sometimes supervened, which has admitted of no other explanation." p. 65.

Death is accelerated, in certain forms of mortal injuries, by sudden, excruciating and unremitting pain; such as from ruptures of the stomach, and of the gall and urinary bladders.

"I was called to a gentleman writhing with pain in the abdomen, which he had endured for the space of two hours previous to my seeing him, and described as unlike any that he had ever experienced. He accosted me in these words: 'Doctor, if you cannot put an end to this pain, it will very soon put an end to me.' So true was his prediction, that in twelve hours, from a state of comparative health, he was no more. This disease was an ulcer in the pyloric portion of the stomach, which had perforated its coats, and allowed of the escape of its contents into the general cavity." p. 71.

"Pain, even of the most harassing kind, when periodical, or relieved by intervals of ease, as in tic douloureux, can be endured for a long time; but this gradually undermines and wears out the preserving principle; as was proved in the melancholy instance of a late eminent physician, whose remarkably athletic and robust frame became emaciated to a shadow by mere corporeal suffering." "Pain," he was wont to say, "is the greatest sedative in nature." p. 77.

Mental influence.—"A young lady happily married, impressed probably by some unexpectedly fatal occurrence in the circle of her friends, entertained, from the commencement of her pregnancy, a morbid fear of death in child-birth; which, although unwarranted by any indication of unhealthiness, became, from its continuance and increasing strength, a source of anxiety to one of her immediate and confidential relatives. She was attended by an experienced and skilful accoucheur, who was also her relation. He assured me that the labour was in all respects easy and safe, and that not a single unfavourable circumstance attended it. The child was still-born and imperfect. The mother died suddenly in six hours after delivery. Every region of the body was examined with care by an eminent anatomist, and presented the appearance of health." p. 21.

SECTION 2nd.—INJURIES AND OPERATIONS.

The symptoms of direct irritation are exemplified, in their most aggravated forms, in some cases of severe *Burns*. As the symptoms of prostration, from these accidents, are generally known, we will merely narrate the appearances on dissection.

"A girl, seven years old, was severely burned by her clothes taking

fire. She died eight hours after the injury.—*Dissection.* Considerable congestion in the vessels of the pia-mater and the plexus choroides. The fluid in the ventricles natural, and in healthy quantity. The cortical part of the brain darker than usual, from the loaded state of its vessels. Sections of the medullary part presented innumerable red specks. No morbid appearance in the chest or abdomen."

In another child, three years old, who died in twelve hours after a severe burn, on examination,

"The vessels of the brain and its coverings, were greatly distended, and the fluid of the ventricles was more abundant than usual. No morbid appearance in the chest or abdomen." p. 87.

"In another case of death from a burn, in addition to the general congestion of the blood-vessels of the brain, the pia-matral covering of the *medulla spinalis*, exhibited, throughout its whole course, a remarkable turgescence of its vessels." p. 89.

On the examination of the body of another patient, who lived near three days after a severe burn, but whose system never reacted, stupor being almost constant, and the pulse hardly perceptible at the wrist, it was seen that

"The vessels of the brain were not particularly turgid, but there was fluid effused between the tunica arachnoides and pia-mater, over the hemispheres and at the base. The membrane covering the pineal gland contained half a drachm of water. The plexus choroides was dropsical, but the water in the ventricles was not in unusual quantity. There was some serous fluid under the mucous coat of the larynx, which was more vascular than usual. No other morbid appearance." p. 92. et seq.

In some remarks on these and similar cases, Mr. Travers observes, that in burns, pain is a favourable sign; and on the contrary, "the early subsidence of complaint, apathy approaching to stupor, as if the scale of sensibility had shrunk below the point of pain, is invariably a fatal symptom. Continued shivering is an ill omen; so also the failure of the circulation, the congestion of the capillaries, &c. followed by drowsiness, laborious breathing and stertor; which are often followed by apoplectic coma, convulsions and death.

"The proximate cause of death appears to me to be a species of concussion—functional, not organic, by which the brain is deprived of its influence over the organ of circulation; for the symptoms of cerebral disorder are first manifested; secondly, a diminution of the power of the heart; thirdly, the respiratory function becomes impeded, as a necessary consequence of the two first." p. 108.

Fractures, Contusions, Lacerations, &c.—A number of cases of complete prostration, and some of prostration with excitement,

are detailed under these several heads; but as similar examples must be more or less familiar to every surgeon, we shall merely notice the important *post mortem* appearances.

In a boy who died from a musket shot in his thigh, at the expiration of nine hours from the reception of the injury, and in whom there was no reaction,

"The hip-joint was uninjured, the trochanter and upper part of the body of the femur was shattered to fragments, the surrounding muscles extensively lacerated, and the artery torn across. The effusion of blood was inconsiderable; the *torn ends of the vessel having contracted*, and receding to the distance of nearly two inches. The contents of the head, chest and abdomen were perfectly natural, and free from any morbid appearance." p. 110.

The following case deserves attention.

"A man fell from the roof of a coach, and suffered a compound fracture of the leg. He was replaced on the coach, and brought to London, a distance of forty miles. On his arrival at the hospital, he appeared as if intoxicated, but recovered from this state in the course of a few hours. On the third day, without any considerable previous inflammation, the leg began to assume a dangerous appearance. On the fourth day he became insensible; his breathing stertorous, and the pupils of his eyes dilated. The symptoms so much resembled apoplexy, that it was supposed some effusion of blood had actually taken place in the brain. The same night he died; and on examination no morbid appearance whatever was found in the brain or other viscera." p. 112.

A girl, aged eighteen years, fractured her leg by jumping off a low wall. Symptoms of fever, cerebral affection, &c. with a quick and feeble pulse followed; and she expired about thirty-one hours after the accident. "*Examination* about three o'clock on the following day. The cerebrum was very firm; the ventricles were unusually dry, but a small quantity of serum was observed in the basis of the skull. The cerebellum was softer than usual, and the vessels throughout the brain were loaded with blood; no trace whatever of injury was observed about the scalp, cranium, or brain; but it may be important to state, that the pituitary gland was unusually large and hard, and that the patient had complained, for a fortnight previous to the accident, of severe headach, and had talked of being bled for it." p. 113.

Operations for recent injuries.—Mr. TRAVERS decidedly prefers the modern practice of performing the necessary operations, after recent injuries, before inflammation has supervened, as lessening the subsequent constitutional irritation; but in some few cases, prostration ensues after such operations.

We have no room for details, but will merely report the post mortem appearances of a boy aged 15 years, who suffered amputation of the forearm, in consequence of the hand and wrist being literally mashed to pieces in a wool-carding machine; whose symptoms were marked by great dyspnœa, anxiety and vomiting, with a quick feeble pulse, and cold surface. The anxiety and labour of breathing continued till his death, which happened at 5 P. M., about eight and forty hours after the accident; and till within half an hour of dissolution his senses remained perfect.

An Examination was made with great care the following morning. All the organs were remarkably sound and healthy, nor was any morbid appearance discoverable in any part of the body, except a slight erythematous blush upon the villous coat of the stomach; an effect, I considered, of the incessant inverted action of that viscus. p. 124.

Operations for Chronic Disease.—Under this head, are detailed several cases of direct prostration, in children, after the operation of lithotomy. In three of them, death ensued in a few hours; no post mortem appearances are mentioned. In a fourth, a child, six years old, became restless within an hour after the operation; which was in all respects favourable. In five hours he was cold, faint, without a pulse at the wrist, and apparently dying. Gin and ether, diluted with barley water, were administered, with an immediate and salutary effect. The convalescence was uninterrupted.

It was found that the parents of these children had been in the habit of giving them gin, to allay the severity of the paroxysm of micturition.

In some of these cases, the patients died in convulsions. The unavoidable *effusion of blood* in operations, insufficient of itself to create alarm, "obviously predisposes to the convulsions; which sometimes prove fatal, especially to children." "We see these spasms in apparently opposite states of the system; in the plethoric and exsanguine, in the robust and the debilitated, in congestion and in effusion, in acute inflammation, and in destructive ulceration." "The tendency of a local irritant to produce convulsions is augmented by any sudden depression of power, as, for example, by shock or by hæmorrhage. When the system is thus exhausted, convulsions are often abrupt in their appearance, and overwhelming in their effects."

To this opinion of Mr. Travers we have already alluded, at p. 81, as one deserving more attention; for he observes, that

"there is an active and a passive form of convulsions; and to the proper treatment of the disease, on which they are symptomatic attendants, the understanding of this distinction is of the last importance. In one case, we look for relief to cordials and tonics, in another, to venesection and purgatives." p. 144.

SECTION 3d.—INFLAMMATION FOLLOWING INJURIES AND OPERATIONS.

Mr. TRAVERS brings forward many interesting cases to exemplify the principle, that general irritation, in other words, prostration of the vital powers of the system, not unfrequently ensues from local inflammatory affections, especially when in confined situations. Instead of sympathetic fever, we have all the well known symptoms of exhaustion, or collapse. This sinking condition of the system is frequently seen in cases of gangrene and sphacelus. We shall merely record the following criticism, for fear it may be as justly deserved by some among us, as among our trans-atlantic brethren.

"I have known *eminent* practitioners prescribe calomel and jalap every six hours, within two days of the patient's decease; in the belief that so vitiated a condition of the visceral secretions as of course and consequence exists, is yet the gravamen of the mischief. At the same time wine and strong nourishment have been proscribed. This is the ultraism of faith in certain doctrines, unimpugnable when unabused, but capable, like every thing excellent, of being injured by a blind devotedness." p. 157.

SECTION 4th.—HÆMORRHAGE AND COLLIQUATIVE SUPPURATION.

The loss of blood, when not directly fatal, sometimes leaves a patient so prostrated that he cannot endure any subsequent operation.

A man was brought to the hospital in a state of collapse from hæmorrhage; his arm being much shattered by the bursting of a gun. "I waited," says Mr. TRAVERS, "a couple of hours, to ascertain his condition, before proceeding to amputation. At the expiration of the two hours his pulse was beating 60 in the minute, and neither thready nor intermitting as before; his faculties were perfect, his limbs warm, and his complexion much recovered. In the operation, scarcely an ounce of blood was suffered to escape. He supported himself with remarkable firmness until the limb was separated; when he suddenly swooned, as if from the effort. From this he soon recovered; but although closely watched, and well plied with

cordials, swoonings returned at intervals, and he expired on the evening of the following day." p. 183.

A considerable hæmorrhage is often injurious in another way. It so prostrates the vital powers as to expose the injured parts to the imminent hazard of erysipelas and gangrene.

"A stout middle-aged gentleman was cut for a deep fistula; and some hours after, bled from the wound, to the extent, it was conjectured, of two pints or more. On the fifth day following the operation, the nates, scrotum, and top of the thigh on the same side, were attacked with acute erysipelas, which threw up phlyctænous vesications and ran rapidly into gangrene. To this he speedily fell a victim, in spite of every effort to support him with diet and medicine." p. 184.

Mr. T. does not adduce an example of prostration with excitement, after severe hæmorrhage; although he distinctly alludes to this state of the system, and subsequently quotes the opinions of Mr. HALL, as published in the Medico-Chirurgical Transactions.*

Excessive suppuration will, if continued, exhaust the vital powers, and be followed by prostration and death. Some cases are adduced, which show that this sinking often ensues suddenly, when the system appeared tranquil and the wound healthy; but we must hasten to that portion of the work which is the most novel and interesting, viz. examples of constitutional irritation from poisons.

SECTION 5th.—POISONS.

Mr. TRAVERS confines himself, almost exclusively, to animal poisons; and enters into a long elaborate discussion, as to the consequences of wounds received in dissection.

These consequences he refers to two distinct sources; one the result of simple irritation, the other the absorption of a poisonous matter. He treats rather cavalierly, "the hardy assertion, ex cathedrâ, that exposure of an absorbing surface to dead animal matter was uninjurious; and that the form of the wound and a certain predisposed irritable state of the constitution, induced by impure air, sedentary habits, deficient rest, anxiety of mind, &c. afforded the real explanation of the phenomena attending these injuries." He acknowledges the influence of a previous morbid

* Vide review of Hall's Essay, in this Journal, vol. i. p. 384.

state of the system; but contends that this is altogether inadequate to explain the terrible consequences too frequently resulting from very trifling dissecting wounds. In the one class of cases, from simple irritation, the constitutional affection is sympathetic of the local inflammation; in the second class, from poison, the symptoms of constitutional irritation are not depending on the local inflammation, although they may sometimes be aggravated by it: "and in general, I should be disposed to say, that the symptoms of local inflammation and constitutional irritation exist in an inverse ratio of severity." p. 203.

The *sympathetic* disturbance of the system may arise from local inflammation, in one or all of the following tissues of the limbs: in the absorbents and their glands, superficial or deep-seated; in the veins; in the cellular membrane, where it is phlegmonous, erythematous, erysipelatous, or gangrenous; and in the thecæ of tendons and fasciæ of muscles. Valuable observations are made on each of these varieties of inflammation, and on their respective influences on the constitution; these not unfrequently proving fatal, especially in persons previously debilitated or diseased.

In illustration of the opinion, that poisonous matter is often imbibed from dead animal substances, many cases and arguments are adduced: some of the former we shall condense, as being new and every way valuable, theoretically and practically. The latter we must leave to the readers of the work itself.

Mr. Astley Cooper met with the following case.

Mr. Elcock, a student, slightly punctured his finger in opening the body of a hospital patient, recently dead, about 12 o'clock at noon, on Monday. In the evening, finding the wound painful, a poultice was applied and some active aperient was taken. During the night, the pain increased to extremity; and symptoms of high constitutional irritation presented themselves on the ensuing morning. No trace of inflammation, however, was apparent, beyond a slight redness of the spot at which the wound had been inflicted, which was a mere puncture. In the evening there was still no local change to be discovered, but the nervous system was agitated in a most violent and alarming degree; the symptoms nearly resembling the universal excitation of hydrophobia; and in this state he expired at three o'clock on Wednesday morning, within forty hours from the injury.

On Saturday morning, Dec. 28, Dr. Pett examined the body of a lady, dead of peritoneal inflammation after her confinement. In the evening, he

experienced much uneasiness on the last phalanx of the middle finger, and on examination he discovered, with the aid of a lens, a minute puncture, and a slight blush around it. This was touched with the nitrate of silver, and subsequently with a small quantity of nitric acid. Neither application gave pain.

At 9 A. M. on Sunday, the finger was much swollen and inflamed, with red lines proceeding partly up the fore-arm. His countenance was haggard and depressed—pulse 90. Dr. P. stated, that he had repeated the caustic; as the former applications had given no pain and the uneasiness of the finger remained. The pain thus produced amounted "to agony;" followed by violent shivering and afterwards by some degree of heat. Leeches, fomentations, and poultices, were applied to the hand, and calomel, with senna and salts, exhibited. At one P. M. appearance greatly altered--countenance suffused—his eyes hollow and ferrety. There was a peculiarity of breathing which never forsook him; it was a suddenness and irregularity in the act of breathing, amounting almost to sighing. His manner was marked by excessive torpor—pulse rather soft, and at 90 or 100—the last and middle phalanges of the finger were gangrenous--the hand swollen--and the inflamed absorbents could be traced to the elbow, with uneasiness in the axilla.

Monday morning.—Dr. P. passed a wretched night and complained of extreme exhaustion. Absorbents and glands in axilla inflamed--pulse irregular. The hand was lanced; a minute quantity of matter escaped.

Tuesday morning.—Symptoms worse, with much restless anxiety. No increase of inflammation or of gangrene in the hand; but the same virulent inflammation was manifested in the axilla and side of the chest; the skin of which was marked by an erysipelatous blush, and pitted on pressure.

On Wednesday--countenance frightfully wan and haggard--pulse 110, irregular and feeble--breathing quick and oppressed. The inflammation of the hand and arm had subsided, but had extended more over the side. The skin was of a deeper hue; some crepitus and obscure fluctuation discovered. A small quantity of bloody serum oozed from an opening made with a lancet. There was evidently a gangrene of the cellular texture. Dr. P. died on Wednesday, the fifth day from the examination of the body.

The next case is that of Professor Dease; and is extracted from the 3d vol. of the Dublin Hospital reports. We condense some of the prominent symptoms.

Saturday, Feb. 13, 1819.—Mr. D. lectured on a subject dead only 48 hours, of a pulmonary disease. On Sunday morning he awoke with a violent shivering and sickness of the stomach; this was followed by a vomiting of his food and of bile, with acute pain in the left shoulder. At 3 P. M.

was bled to ℥xx., with no relief. At 9 P. M. pain continued, with fever; and some fulness was observed on the left side of the neck; the pain was aggravated by the slightest pressure.

Monday, Feb. 15.—Pain in the shoulder still intense.

Tuesday morning.—Bowels open; the pain in the shoulder was less severe. The purgatives were continued.

At 9 P. M. had some slight pain in his side; which, on examination, was found swollen, the skin unaltered. This excited suspicions of the nature of the case; and on examination, Dr. Colles discovered, towards the ulnar side of the second joint of the thumb, the mark of a scratch, a quarter of an inch long. This formed the diameter of a vesicle, which was half filled with a fluid of a milky consistence and whiteness. He could now bear pressure above the clavicle, and his shoulder was less painful.

Wednesday.—Was purged, and took an anodyne.

Thursday.—Slept for four hours.

Friday.—Bad night; some delirium; face has a yellow tinge; features sharp; on the right arm, two inches below where he had been blooded, Dr. Colles noticed a small vesicle containing a fluid, like that of the original wound on the thumb. This vesicle did not increase in size nor alter in any way.

Saturday.—More delirious—pulse 126 and smaller—the entire side swelled and studded with small elevations, like vesicles, but hard to the touch—in some parts an erysipelatous blush evident. This increased towards evening, as also his delirium—perspiration cold and clammy.

Sunday.—Became stupid, and his left leg stiff, with clammy sweats—sighing. 12 o'clock—Erysipelas extended to the axilla, and of a darker colour—a swelling on the anterior part of the right arm, occupying about a hand's breadth of the belly of the flexor muscles. A poultice applied. 5 P. M.—A slight serous discharge flowed from a puncture into this swelling.

Evening.—Pulse not perceptible—limbs warm—breathing quick and labouring. Died at 10 o'clock, (8th day.)

On Monday morning two or three vesicles were found in his back, and the swelling had extended down his left thigh. The left arm was swelled, and rather hardened from the elbow to the shoulder; but there was no redness or vesication.

Mr. Newby, on Saturday, May 31st, was exposed to a heavy rain. On Sunday he opened the body of a child, dead of enteritis and of erysipelas of the abdomen.

On Wednesday he had head-ach, nausea, constipation, pain in his limbs, heat, &c., pulse frequent, but neither hard nor full, tongue white. He showed me a pustule on the back of his left thumb, exactly resembling the small-pox—with slight pain in the axilla, without tumour or any appear-

ance of inflamed lymphatics on the arm. Discharges from the bowels offensive.

On Thursday and Friday seemed better—no uneasiness in the thumb, and pain in the axilla diminished.

Saturday.—Had a restless night—thumb nearly well; complained of a deep-seated pain in the left breast, which assumed a slight pink tinge, and the axilla and arm became more uneasy.

Sunday.—Irritability excessive, with some delirium. The inflammation of the breast had extended and was surrounded with a deeper red margin of about one-eighth of an inch in breadth. Pulse 108—more feeble—tongue dry and brown.

Monday.—Restless night—pain in the head greater, and that of the left breast much increased. The tumour now extends from the sternum to the scapula, and from the clavicle to the left hypochondrium. Heat of skin much greater—tongue dry and brown—pulse 110—had two fœtid stools—restless during the day.

Tuesday.—Febrile symptoms continue. The arm has swelled, and the tumour of the breast contains effused serum, and is of a brownish yellow colour.

Wednesday.—The symptoms were aggravated during the night; and he died about noon, (11th day.)

During Mr. Newby's illness, his assistant, Mr. Jackson, had an erysipelatous inflammation of the fauces, with suppuration of the tonsils. His pupil had an attack of a low fever for one week. His house-maid had a severe cynanche tonsillaris. The nurse had an attack of pyrexia, and went home for a day or two; but returning to the house, was attacked with erysipelas phlegmonodes, which proved fatal. Another female, who assisted in the room after Mr. N.'s death, had also the erysipelas phlegmonodes, but recovered.

Tuesday, 4th Aug. 1818.—Higginbotham, in removing the body of a female who had died of typhus, had his left hand besmeared with a moisture which had oozed from it. He had at the time a recent scratch on the second joint of the left thumb. On Wednesday the scratch inflamed slightly. In the evening had a chill, with pain in his limbs and head. On Thursday at 2 P. M., vomited. Face flushed—pulse 120, full and hard—tongue very white.

Friday.—Been purged with calomel and jalap. Febrile symptoms more moderate. Has soreness on the top of the left shoulder, and fulness in the axilla, with numbness in his fingers.

Saturday.—Constitutionally, much better. Pulse 90—the scratch on thumb suppurating—the absorbents and their glands natural—but shoulder still uneasy, with soreness in left breast, which was slightly puffed and of a pink colour.

Sunday.—More fever—pain in breast and head—bowels relaxed.

Monday.—Pulse 120—great anxiety—breast swollen.

Tuesday.—Delirium—pupils of the eye contracted. Was bled, and leeches applied to breast, which was more tumid and high coloured. Was purged by medicine.

Wednesday—Fever, with delirium and great debility.

Thursday—Comatose and insensible—pupils contracted almost to obliteration. Died in the afternoon, on the tenth day from the inoculation.

These and similar examples are adduced to exhibit the most severe effects from the absorption of poisonous matter. Other cases are subsequently presented, of minor degrees of constitutional irritation from poison, received not only in the dissection of human bodies, but also of the inferior animals. After which Mr. TRAVERS enters into a minute investigation of the disputed question, whether a poison is ever absorbed, or, whether the constitutional affection is always symptomatic of the local irritation.

In deciding, very positively, in favour of absorption, he endeavours to discriminate between the two classes of accidents, points out the various circumstances which modify the effects of local irritation, and shows that some of these last cases are often so severe, and are so rapidly followed by a collapse of the system, as to approximate them very closely to the cases of absorption. Into these details we cannot follow him; and we shall bring our analysis to a conclusion, by recording, from this work, some very extraordinary facts regarding the absorption of poisons, which will interest not only the mere practitioner, but also the physiologist and pathologist.

Specific contagious diseases are not communicable, according to Mr. TRAVERS, after death. "I never knew, nor heard of a case in which venereal or carcinomatous symptoms succeeded to" wounds received in dissection; and as to subjects dead of small pox, although spurious pustules form upon the wounded fingers, "I never knew an instance in which the constitutional disease was communicated;" and hence, Mr. TRAVERS believes that the poison received in dissection is peculiar, and *is generated after death.* p. 366.

"Veterinary surgeons, however, receive the poisons of glanders, both from the living and the dead animal, by inoculating chaps and punctures; for the matter secreted in the cellular abscesses of persons so affected is capable of producing glanders, when introduced into the system of the horse or ass by inoculation. This is sufficient to show, that the *specific*

property of the poison is retained in its passage through the human system; but there is no evidence of its acting on the human body, otherwise than as the poison of dead animal bodies." * * *

"Mr. TURNER, a veterinary student, injured his finger in examining the head of a horse dead of glanders. An ulcer followed, with inflammation of the absorbents and of the cellular membrane of the hand, and symptomatic fever. After some days an abscess formed in the opposite arm, and another on the lower part of the back. Matter taken from the abscess of the arm was sent to Mr. COLEMAN, who inoculated an ass with it and produced fatal glanders.

"Mr. TURNER's health was seriously affected; he became hectic. Subsequently an abscess formed in his lungs, another in his kidney, and after several months, abscesses formed successively upon each knee joint. From the last, matter was taken for the purpose of inoculating an ass, which died in eleven days glandered. A short time after, Mr. TURNER died also." p. 350.

Mr. COLEMAN, in a letter to his friend Mr. TRAVERS, on the above case, cites the following opinions and facts:—

"I think it highly probable, that in all constitutional diseases, such as small-pox, measles, lues, cow-pox, whooping-cough, and perhaps from the absorption of putrid matter and other animal poisons, the whole of the blood is contaminated. In acute glanders, *the blood is undoubtedly affected.* I have produced the disease by first removing the healthy blood from an ass until the animal was nearly exhausted, and then transfusing, from a glandered horse, blood from the carotid artery, into the jugular vein of the ass. The glanders in the ass was rapid in its progress, and violent in degree; and from this animal, by inoculation, I afterwards produced both farcy and glanders." p. 355.

ARTICLE VIII.—*Practical Observations on the Convulsions of Infants.* By JOHN NORTH, Surgeon-Accoucheur. London, 1826.

CONVULSIONS occurring in infants and young children, constitute a subject in the highest degree deserving the close attention of every practitioner, especially of such as have but lately entered upon the duties of their profession. No one indeed, who has witnessed the dreadful contortions of the little patient writhing in convulsions, and the intense solicitude of the parents to obtain prompt relief for their child, from its state of apparent agony—no one, who is sufficiently impressed with the necessity, in many of

these cases, of immediate and active treatment, and the imminent danger, and even fatal consequences, resulting from hesitation or the least error of practice, but must earnestly desire to be in possession of correct views in regard to the pathology, and to have at his command such remedies as are adapted to remove effectually this perplexing and highly destructive disease. From the ordinary practical works, little or no useful information is to be obtained on either of these points. Medical writers have heretofore, indeed, strangely neglected a train of symptoms, by which thousands of the human race are annually swept from existence, during their earliest years. A few imperfect and superficial remarks constitute all that we are in general presented with, in relation to the nature and causes of infantile convulsions; while the plan of treatment proposed for their prevention and cure, is too often marked by the grossest empiricism.

That spirit of investigation which has for many years past so eminently distinguished the medical school of France, and which has very successfully directed the attention of the profession, in that country, to the study of those complaints which had, previously, been either entirely neglected, or imperfectly understood, has given rise to two highly interesting treatises on the disease before us. We allude to the work of Baumes "*Sur les convulsions dans l'enfance*," and the more recent publication of "Brachet *sur les causes des convulsions chez les enfans, et sur les moyens d'y remédier.*" We believe, however, that Mr. North is the first English writer who has made the convulsions of infants the subject of a separate treatise.

The work of Mr. N. is undoubtedly replete with much valuable information, and many important and extremely judicious practical precepts. But the author has by no means exhausted the subject; while the entire neglect, throughout, of any thing like methodical arrangement, the careless manner in which, very generally, the treatise is written, and the amount of matter which it contains not immediately connected with its principal subject, are circumstances that detract greatly from its value. In our analysis of its contents, neglecting the order, or rather confusion, pursued by the author, we shall briefly notice such of his observations as we conceive worthy of particular attention; interposing

an occasional remark, the result of our own reading and experience.

That children are peculiarly subject to convulsive affections, is a fact which has been admitted by every observer, "sous toutes les latitudes, sous la zône brûlante des tropiques, comme sous la zône glacée du Spitzberg."* From a return made by Dr. Clarke, at the end of the year 1792, it appeared, that, of 17,650 infants born in the Lying-in hospital of Dublin, one-sixth died during the first year after birth, and that nineteen out of twenty fell victims to convulsions; and Dr. Lange has recorded that, at Copenhagen, during a period of 13 years, no less than 12,769 perished from epilepsy.

It has been said that the number who perish from convulsions is much exaggerated; that in a great majority of the cases in which they occur, convulsions can only be regarded as a symptom of some other disease, the fatal termination of which has contributed to increase the various returns of deaths ascribed to "*general convulsions.*" To a certain extent this may be true; but, every allowance being made for these probably erroneous records, it must be admitted that a vast number of children are suddenly destroyed by an unexpected attack of these affections, when no previous derangement of health was evinced, or at a time when any malady, under which the child might be labouring, began to assume a less severe aspect, and to justify a favourable prognosis. Even though convulsions in children be viewed in most instances as merely symptomatic of some other disease, yet they are of sufficient importance to admit of a separate consideration; inasmuch as they not unfrequently destroy life in a few moments, when it was not endangered by the malady during which they were excited. p. 4.

The great disposition of infants to nervous affections is not surprising, when we consider, that the habit of bearing external and many internal impressions is yet, in a great measure, to be acquired; and until the frail mind and body of the infant are accustomed, by habit, to have their powers acted upon with impunity, the most hazardous susceptibility must necessarily exist. The muscles during infancy are pale, soft, and fragile, their contrac-

* Brachet sur les Convulsions. Paris, 1824.

tions are quick, frequent, and feeble, and the external surface of the body is endowed with a very high degree of sensibility, in consequence of the nerves being covered only with a very fine or thin cuticle; hence, from very slight impressions arise very powerful effects. The muscular fibre, as well as the skin, is highly sensitive. The nerves are large in proportion to the size of the body; they resemble medullary pulps. Both the cerebral and ganglionic nerves are much more strongly developed, in relation to the body, than at any other period of life; and the brain is peculiarly large. As we advance in years, the coats of the nerves, and the muscular fibre, become firmer, and our susceptibility to external impressions is considerably diminished: hence it is, that in proportion as we advance in life, convulsions are less likely to take place. They sometimes occur during youth; in the adult they are rare; and they scarcely ever happen in old age. The sensations of a child are quick, but transient. When any reaction takes place in the system, it is powerful and sudden, and coincides with the general mobility: motion, indeed, is the language of an infant. pp. 9, 10, 11.

All children are not, however, equally disposed to attacks of convulsions. According to Levret, Mauriceau, Baumes, and other writers, children born with large heads, or whose heads increase in size disproportionately to the rest of their bodies, will be more subject to convulsions. Mr. North has seen them occur very frequently in children with small heads; while in those cases which have fallen under our own notice, and which have not been few in number, nothing remarkable was observed in regard to the size or form of the head. Convulsions are very frequent attendants upon a ricketty affection of the system. It is said not unfrequently to happen, that when some of the children of the same parents are affected with rachitis, others, who are exempt from this disease, are at an early age destroyed by convulsions.* Children of parents who marry at too early or too advanced an age, are more susceptible of convulsions, than the offspring of those who marry in the prime of life.

An hereditary predisposition to these affections has been noticed by many respectable authorities. Lorry relates the history of a

* Dictionnaire des Scien. Med. Tom xlvi. p. 602.

family, in which the father, mother, and children were affected with convulsions from the most trifling causes, notwithstanding they were brought up in different situations, and their educations were totally different.

The offspring of women in the higher circles of life, who enfeeble their health by late hours, hot and crowded rooms, improper dress, and unhealthy, irregular diet, are undoubtedly more disposed to convulsive affections, than the children of those females who are regular in their mode of living, and who enjoy the calm tranquillity of a country life. Convulsions are, indeed, of far more frequent occurrence in large and crowded cities, than in the open country. A plethoric state of constitution also increases the natural aptitude of a child for convulsions.

In warm climates the sensibility of individuals of every age, both to mental and corporeal impressions, is much more highly developed than in colder regions; and hence the greater frequency of convulsive diseases in the former.

The parts most commonly the seat of convulsions, are the eyes, the features of the face, the superior and inferior extremities, and the respiratory muscles. Each part of the body may be separately and successively affected, or the whole frame may be convulsed at the same time. The convulsive movements are occasionally confined to one side of the body, or are more violent on one side than the other. A portion of a muscle only, is occasionally influenced by the convulsive action, while the remainder is in perfect repose. p. 22.

Dr. Clarke enumerates* among the most common symptoms of infantile convulsions, foaming at the mouth, and "a violent redness of the face and scalp in the beginning of the paroxysm, followed by a purple colour of the whole body at the end of it." According to Mr. North, however, neither the redness of the face and scalp, nor foaming at the mouth, are very common appearances in simple convulsions. But Dr. Brachet has certainly erred, when he defines the paroxysm to be "toujours sans écume à la bouche." Neither fever, nor disturbance of the intellectual functions, forms an essential part of the symptoms of simple convulsions.

* Commentaries on the diseases of children. p. 81.

The duration of a convulsive paroxysm is uncertain. It may last for a few minutes only, or continue for one or two days. In the latter case, however, there is some remission in the violence of the convulsive movements; the infant appears tranquil for a short time, and is again subjected to the same distressing and involuntary struggles.

The violence of the muscular contractions during convulsions, sometimes causes considerable pain. Baumes asserts, that cases of convulsions have occurred of such violence, that the teeth have been broken, the eye-balls thrown from their sockets, blood driven from the nose, or effused into the cellular tissue, producing general ecchymoses; and that even the limbs have been luxated or fractured. Of the latter accident, Lieutaud has, also, recorded cases. Such occurrences must, however, be extremely uncommon. Mr. N. never noticed any examples of such extraordinary violence; and we can repeat the same remark in regard to our own experience, although it has been our lot to witness cases of infantile convulsions of extreme severity. Slight ecchymoses and discharges of blood from the nostrils are, however, not uncommon occurrences.

Whether convulsions have been continued or intermittent, the cessation of the paroxysm takes place in the same manner. The irregular movements become gradually less violent and frequent; the eyes less salient and of a more natural expression; the face assumes its usual look; and the little patient seems unconscious of any disturbance. If he can speak, he merely evinces great lassitude, and complains perhaps of head-ach. A refreshing sleep frequently succeeds. Not always, however, after violent convulsive attacks, does the patient regain immediately the power of all the muscles that had been affected, nor return to a state of perfect health. A curious case is related by Mr. Thompson, in the Medical Repository, of loss of speech and hearing, in a child eighteen months old, consequent upon a sudden attack of convulsions. Her vivacity remained, and her bodily health was unimpaired. She continued in this state until her sixteenth year; when, after the noise of a public rejoicing, she was observed to recover her sense of hearing, and she soon began to articulate.

Mr. N. is of opinion, that there is a strict analogy between simple convulsions and epilepsy. The muscular system is in each

affected in a similar manner; but the attack of epilepsy commences and terminates by a state of stupor and dulness, which for a time destroys the senses and intellectual faculties. Nothing of this is observed in convulsions. Epileptic paroxysms occur, most frequently, also, without evident cause: the cause of simple convulsions, on the contrary, may, in general, be ascertained. Convulsions, however, attacking highly irritable habits, may run into genuine epilepsy, idiotism or paralysis. Infants, also, that have been frequently attacked by convulsions, are very liable to be affected with chorea, about the age of puberty; more particularly if females. p. 3.

Of the *proximate cause*, or nature of convulsions, we are, and probably shall ever remain, in doubt. We cannot expect positively to determine it, until we become acquainted with the medium by which the muscles are connected to the common sensorium and the volition of the mind, and with the nature of the nervous power. In the absence of more precise information, many conclusions of much practical utility, may be derived from a patient investigation of the various phenomena connected with convulsive actions, and by a close attention to the remote causes by which they are induced.

During a state of health, the velocity and force of muscular contractions are in relation to the degree of excitement that is applied, and to the powers of the animal. These contractions are soon succeeded by relaxation; and they are not again repeated until excited by the will, or by the stimulus peculiar to the part. During convulsions, the voluntary muscles are excited independently of the will; or, if an effort of volition be made, the muscles do not obey its dictates, as in the state of health. Without then possessing a knowledge of the essential nature of convulsions, Mr. N. conceives it must be evident, that whenever convulsive motions take place, some morbid change must exist in the seat of volition, or in the nerves, or in both; or that the muscles may have undergone some morbid alteration, in consequence of which they exhibit the various phenomena of convulsions, without any alteration in the nervous system. p. 28.

The foregoing statement strikes us as being extremely vague, and but little calculated to lead to useful practical results. We can conceive of no "morbid alteration" in the muscles, capable

of inducing convulsions, which does not implicate the nervous system. We feel persuaded also, that in numerous instances convulsive paroxysms arise from *simple* irritation, without any actual "morbid change" in either the nerves, brain, or spinal marrow.

The pathology of many cases of convulsive affections is, confessedly, involved in the deepest obscurity: nevertheless, we believe that a great majority of them may be referred to one or other of the following causes: 1st. to undue irritation, in certain constitutions, of some portion of the nervous system, from the application of morbid or excessive stimuli; 2nd. to irritation induced by natural and ordinary stimuli, the sensibility or irritability of a part, or of the whole system, being exalted above the healthy grade, in consequence of disease; 3d to partial compression of the brain or spinal marrow, or irregular circulation in their blood vessels: 4th. to injury of the brain, or spinal marrow, from accidental violence; and 5th, to organic læsion of one or other of these parts. We simply enumerate these causes, without stopping to adduce evidence in support of their correctness.

Both in adults and children, the effects produced by any given irritation will depend on the particular constitution and temperament of the individual. In one, local pain, unconnected with general disturbance, may ensue; in a second, an attack of fever may arise, and in a third, convulsions with or without pain or febrile movement.

Convulsions frequently occur from local injury of particular nerves, but it is remarkable that the muscles to which the injured nerve is distributed, may be the last affected with convulsive motions. Convulsions do not, however, succeed every disease of the nerves: thus, Dr. PRING has shown that inflammation of a nerve does not, of itself, produce those specific effects that are displayed in the phenomena of convulsive affections. North. p. 29.

That the brain, in most cases of convulsions, is directly or indirectly irritated, there can be no doubt. This irritation may, however, last but for a moment, and be so trifling as to produce no serious derangement of the cerebral functions, much less any alteration of structure. It may, it is true, be kept up by a continuance or repetition of the exciting cause, and produce irremediable mischief. The irritation which was at first confined solely

to the nervous system, may extend itself to the blood vessels; and an undue determination of blood being induced to the capillaries of the brain, inflammation and its consequences may ensue. We cannot, however, admit irritation of the brain to be the proximate cause of all convulsive affections; for in some cases of local injury, they may arise independently of the mediation of that organ.

Dr. Brachet has endeavoured to prove that every case of convulsions, partial or general, must be dependent upon cerebral irritation. This doctrine is not peculiar to him; but his authority is cited as he is the latest writer on the subject, and has obviously had considerable personal experience, which he has matured by an attentive consideration of the labours of others. Mr. N. however, states, that he cannot conceive that the convulsions which arise in plethoric habits, where we are called upon to draw blood, and those which occur from the excessive loss of blood, (it being well known that animals which die from hæmorrhage suffer violent convulsions,) can alike arise from cerebral irritation. It is a curious fact, however, that has lately occupied considerable attention, and of which Morgagni was aware, that there may be great determination of the blood to the head, with much turgescence of its vessels, when the individual has suffered severe hæmorrhage. In such cases the vessels of the head throb violently, pain is complained of, and if the subject be a child, it will be extremely restless and irritable. p. 104. Mr. Cooke, in his abridgment of the work of Morgagni, well observes, that the liability to this form of cerebral plethora appears to be proportionate to the preceding hæmorrhage and consequent debility. Dr. Seeds* has made some interesting experiments upon this subject. When death was caused by opening the veins of an animal, he found a state of venous congestion to exist in the brain. These experiments were repeated in this city, and we believe we are correct in saying, with precisely similar results.

It has been asserted by the late Dr. Clarke,† that "in every case of convulsions, the brain is, at the time, organically affected, either directly or indirectly." But this gentleman must certainly have employed the term "organic affection," in a very different

*Medico-Chirurgical Journal. February 1816.

† Commentaries on diseases of children. p. 90.

acceptation from that which is applied to it by physicians generally. If he meant to convey by it the idea of *organic læsion*, his statement is, in the highest degree, incorrect. That, in most cases of convulsions, there is some functional disturbance of the brain, is not only probable, but certain. It is also true, that *organic* disease of the brain may exist as their cause, or ensue as their consequence; but this is very far from coinciding with the doctrine, which would teach that, in all cases of these affections, the brain is thus circumstanced. The recorded examinations of the bodies of children who have died from convulsions, prove that such is not the case. Indeed, the very symptoms of the disease disprove the invariable or very common existence of organic læsion of the brain as its cause.

It is an undoubted fact, that convulsions in children are of much more frequent occurrence, at the present day, than during any former period. In ancient Europe, Mr. N. remarks, convulsive affections were scarcely known. It may, perhaps, be partly inferred, that the vast increase of nervous diseases is to be imputed to the modern and vicious system of educating infants. It is at least certain that all diseases of this class have increased, in proportion as fashionable education has removed children from that bodily freedom and carelessness of mind which, to a certain extent, are essentially necessary to the preservation of their health.

As one of the fruitful sources of this increase of infantile convulsions in latter times, our author would appear to consider the "too early" attempt, in modern systems of education, "to cultivate the mental powers of children"—by premature "efforts to improve the powers of the intellect, the organ in which they reside is exhausted. The practitioner then cannot too forcibly reprobate the pernicious enforcement of precocious studies." "I am persuaded, from frequent observation, that from this cause alone, irremediable mischief is frequently produced, and the foundation laid for fatal diseases of the brain, with which convulsive affections are so intimately connected." p. 37. Notwithstanding this bold declaration of Mr. N. on this point, we can in no degree coincide in opinion with him. The intellectual education of a child, however early commenced, can of itself be productive of no prejudicial consequences; and when the health of children has appeared to suffer from attempts at their early edu-

cation, this has arisen in every instance, we are persuaded, from the injudicious method in which such education has been conducted;—from confinement, for the greater part of the day, in close and crowded school rooms, the air of which is rendered impure by the number of those who constantly breathe it; and from the prolonged restraint imposed upon that natural inclination, in all young children, to almost incessant bodily motion and playfulness, a disposition so essential to the health and well being of their little systems.

Infants are liable to convulsions from the first moment after birth; and it cannot be doubted that they occasionally arise from the excessive and long continued pressure of the head during protracted and difficult labours. We think that we have noticed this to be particularly the case when such labours have been accelerated by the use of ergot. When convulsions are dependent upon the above cause, according to Mr. N., they generally cease a very short time after birth. This is not, however, our experience: we have found them to be frequently obstinate and occasionally fatal.

Children, not unfrequently, are born in a state of asphyxia: many who are recovered, by appropriate means, from this condition, enjoy a perfect state of health; but in others, the vital powers can be only imperfectly excited, the respiration is laborious, and the countenance purple and bloated. To this state of things a fatal paroxysm of general convulsions almost invariably succeeds.

Convulsions are frequently produced by the imprudent custom of exposing the new-born infant to a vivid or powerful light. This fact, trifling as it may appear, did not escape the acute observation of Van Sweiten. Suddenly rousing young children from their sleep and carrying them from a room comparatively dark, into a glare, according to Mr. N., likewise renders them more liable to convulsions. It is also well known that in new-born infants, convulsions are very apt to arise from the irritation of retained meconium.

From the earliest period subsequent to birth, infants may be attacked with spasmodic colic. As a consequence of this painful affection, Baumes and North have seen children remain paralyzed for a considerable time; and the latter has remarked, that if the

attacks are long and severe, convulsions or even epilepsy is not unfrequently produced. A similar observation is made by CHAMBON, in his treatise "Des Maladies des Enfans," vol. i. p. 241.

The most common causes, however, of those derangements of health, which either immediately or eventually lead to convulsions in children, are errors in diet, with respect both to its quality and quantity. That convulsions should frequently arise in children, from various irritations affecting the stomach, is not surprising. The nerves of that organ have an evident and a very powerful influence over every part of the frame: the strict sympathy, in particular, which exists between the stomach and brain is too well known to require particular attention.

It cannot be doubted, that convulsive, as well as other diseases in childhood, may be induced by sucking unhealthy nurses. A predisposition to these affections Mr. N. conceives to be originally produced in infants, in consequence of their being suckled by a nurse addicted to the immoderate use of spirituous liquors. Violent emotions, great anxiety of mind, or excessive bodily fatigue in the nurse, are also set down as causes of infantile convulsions. M. GILIBERT relates the case of a child who died from this disease, after having sucked a nurse that had been exposed to hard labour, under a burning sun. By a majority of the writers on infantile convulsions, they are said to be very frequently induced by sucking from the breast of a nurse during, or immediately after, a violent fit of passion. BOERHAAVE refers some cases of epilepsy to this cause; and BAUMES relates an instance occurring in the child of one of his professional brethren, where death was suddenly induced by convulsions, brought on by sucking the breast of a female who had been violently exasperated. Convulsions, remarks Mr. N., may, of course, occur in a child suckled by a woman of impetuous and ungovernable temper, although it does not follow as a necessary consequence, that the intemperance of the nurse must have caused the attack. For ourselves, we have not found children suckled by mothers of violent and passionate dispositions, more liable to convulsions, than those who derive their nourishment from the breast of females of milder and more even tempers. In more than one instance Mr. N. has known convulsions induced in infants, when suckled by nurses labouring under great anxiety of mind, although with

apparently healthy breasts of milk. It is a common opinion, also, that if a child be suckled by a woman who is menstruating, it will be necessarily attacked with convulsions. This Mr. N. considers a ridiculous and imaginary supposition, which requires no further notice than the mere mention of its absurdity. We know not that convulsions are a very frequent, much less, a necessary consequence of a child's being suckled under such circumstances; nevertheless, we cannot consider the milk of a female, while menstruating, as affording a proper, or sufficient nourishment: it is, consequently, not adapted to support the healthy condition of the infant system, and may in that manner become a predisposing, or exciting cause of disease.*

The mind of a child is as sensitive as its body; and although we have no clear idea of the manner in which convulsions are produced by the operation of moral causes, the fact is proved beyond the possibility of doubt, by the lamentable consequences which so frequently arise from the influence of the various passions. Thus the passion of fear, suddenly excited, is often followed by convulsions. Although convulsions are not so apt to arise from the effects of anger, as of horror, or fear, we should guard against that violent emotion in children as much as possible. Especially dangerous is a violent fit of passion in those with large heads, flushed faces, turgid jugulars, and other indications of determination of blood to the head. p. 87. Indeed, in such children, every cause capable of exciting violent and long continued fits of crying, should be carefully avoided. During such fits, particularly when arising from impetuous anger, there is always a very considerable increase of the afflux of blood to the brain; and they have been known to terminate in a paroxysm of convulsions.

Allowing young children, particularly those of a delicate habit and high susceptibility, even occasionally, to remain late out of bed in the evening, especially when surrounded by company and various excitements, is a means of increasing their nervous irrita-

* Chambon, "*Des Maladies des Enfans,*" vol. i. page 328, enumerates, as one of the causes of infantile convulsions, "Le lait d'une nourrice qui éprouve, par l'effet de la menstruation, des douleurs assez vives pour exciter un trouble remarquable dans ses nerfs; d'où l'altération du lait."

bility, and consequently augments any already existing predisposition to cerebral derangement or convulsive affections. p. 37.

Baumes has dwelt at considerable length, on the probability of convulsions arising, in infants, from impure air. It can require no laboured proof to show, that it is necessary for the preservation of the general health, as well as for the prevention of convulsions and many other diseases, that children should breathe a pure atmosphere. Not less important is a strict attention to the cleanliness of their persons and clothing. Dr. Clarke of Dublin, in the Transactions of the Irish Academy for 1789, has pointed out, very forcibly, the powerful influence of filth of body and clothing, in exciting infantile convulsions.

The irritation of retained and vitiated fæces may give rise to convulsive affections in children. Worms, also, in the intestines, are said to be a frequent cause of both simple convulsions and epilepsy. This Mr. N. does not feel inclined to deny, as of occasional occurrence, but he believes it to be the case much less frequently than is usually imagined. For himself, he does not recollect a single instance where convulsions appeared to depend on the presence of worms, or to be relieved by their discharge. Brachet and others are of opinion, that worms in the intestines are productive of mischief, only when diseased themselves; he imagines, that their movements are then more irregular, and that they evacuate vicious humours capable of producing irritation in the bowels. Mr. N. agrees with Lieutaud, that even the existence of worms, in children at the breast, is to be considered as very uncommon. There are many cases on record, in which worms engendered in the meatus auditorius, have produced convulsions. Brachet relates one such instance; in this the convulsions ceased upon the extraction of the worm from the ear.

Wickham and other German physicians, deny that any disturbance of the infantile system ever results from difficult dentition. They refer those symptoms of disturbance which occur during the process of dentition, to other and distinct causes. That children do, however, occasionally suffer considerable distress during the period at which the teeth are about to pierce the gums, is certain; and that the pressure of the protruding tooth upon the nerves of the part is frequently, the cause of the convulsive paroxysms with which children are at this period affected, must

be equally evident, from their almost immediate cessation when the gum is freely divided. Whatever, indeed, may be the cause of pain in children, convulsions are liable to occur, if the pain be severe, or long continued. The degree of pain necessary, however, to produce convulsive movements, will depend on the constitutional irritability of the infant. p. 111.

The desiccation of cutaneous discharges of various kinds, and the sudden repulsion of certain eruptions, are considered, by nearly all the authorities, as frequent causes of convulsions in children. It is observed in the *Dict. des Sciences Medicales*, article *Convulsions*, that among the cutaneous diseases, the repercussion of which may be productive of the most serious consequences to infants, measles are certainly to be included: and the writer of the article has, in many instances, known fatal convulsions to be occasioned by the improper treatment of the disease. Mr. N. on the contrary, has never known convulsions occur, during measles, however injudicious the treatment may have been. During the stage of accession of many eruptive fevers, paroxysms of convulsions not unfrequently take place. In such cases, they are considered, by some writers, a favourable omen. Mr. N. believes this opinion well founded, provided the eruption appear at its usual period. Baumes, Mensuret, De Laroche, and some other writers, on the contrary, consider convulsions, when they usher in an eruptive disease, a highly dangerous symptom. Cullen remarks, that if the attacks be severe and frequent, the danger is considerable, and prompt assistance is demanded. The point thus disputed by authors, may, perhaps, be settled, by reflecting that when an irritation of the brain takes place in consequence of the sympathy of that organ with a distant part in a state of disease, the sympathetic irritation, particularly in very susceptible constitutions, may pass into an independent disease of the brain, which may be followed by very serious, or even fatal consequences: hence then, convulsions preceding eruptive diseases, can never be viewed as favourable circumstances. They may be harmless, it is true, if the excitement of the brain be transient and purely sympathetic. p. 65. It not unfrequently happens that when a child has been exposed to the contagion of small-pox, measles, scarlet fever, &c. the most violent disturbance of the system occurs at the period when the eruption should have taken

place, and only a very slight appearance is to be observed on the skin, which quickly vanishes. In such cases convulsions are common, and frequently fatal. p. 63.

Convulsions may be occasioned by inflammation of the membranes of the brain, by tumours upon the pia mater, sharp spiculæ of bony matter formed in the dura mater, abscesses in the brain, or blood effused in its substance from external violence.* Many curious cases are on record, in which considerable accidental injury of the head has been followed by partial convulsions, as of one arm only, &c.† Hoffmann relates the case of a child, who, having the cranium fractured on the left side, and a considerable portion of the brain destroyed, was paralysed on the right side and convulsed on the left.

From whatever cause fever may arise in children, convulsive movements of different parts of the body will frequently attend the attack. In both acute and chronic hydrocephalus, convulsions also constitute a very important symptom.

By most writers, convulsions are said to occur, generally, in cases of spina bifida. In three instances of the disease, which occurred to Mr. N., no convulsions took place excepting during attempts to afford relief by means of pressure upon the tumour.

By the improper use of opium and its preparations, children are very frequently reduced to a state of general debility and irritability which very strongly favours the occurrence of convulsions. In the course of our practice we have had frequent occasion to verify the truth of this observation.

Excessive and long continued diarrhœa frequently increases, according to Mr. N., the disposition of children to convulsive diseases. When it has proceeded to such an extent as to break down the constitutional powers, the irritability of the child is increased to such a degree, that the ordinary light of day, or the most trifling noise, cannot be borne; while the bowels acquire such a degree of morbid sensibility, that whatever is introduced into them occasions violent pain, and frequently convulsions. p. 106. When convulsions occur in the course of obstinate and violent diarrhœas, they no doubt, in many cases, are to be referred to the

* Baillie's Morgagni.

† Journal de Med. t. lxviii. p. 10.

same continued cause of irritation, by which the diarrhœa itself is kept up. Convulsions may likewise occur in children, in consequence of excessive hæmorrhages, of deficient nourishment, exposure to cold, &c.

Convulsive affections are stated by WILLIS* and other authorities, to be occasionally epidemic. It would, perhaps, be more correct to presume that some epidemic disease had prevailed, of which convulsions were among the symptoms. In the Journal Generale de Médecine, vol. ii. an interesting description is given by G. DE CLAUBRY, of a very destructive convulsive disease, which occurred at Paris and its vicinity. This epidemic, which generally destroyed life within seven hours, only attacked children below eight years of age; it was also observed in dogs under the age of four months. By dissection, in the only case in which it was performed, blood was found effused under the cranium, all the vessels of both cerebrum and cerebellum were turgid with blood, and the dura and pia mater were of a deep red colour. In the thorax, the vessels of the lungs were found gorged with blood; the left cavities of the heart were much dilated, and filled with black blood; those of the right side were empty; the contents of the abdomen perfectly healthy, but rather paler than usual. No symptom indicated that dentition had commenced. The dogs that were opened after death from the disease, presented precisely similar appearances.

Dr. MOULSON has published some interesting observations on spasmodic and convulsive diseases, in the Medico-Chirurgical Journal for May, 1817; and he has given us the appearances on dissection, of some fatal cases. In every instance in which convulsions terminated fatally, under the notice of this gentleman, he invariably found vascular turgescence at the origin of the nerves distributed to those muscles that had been affected with convulsive motions. Similar evidence of the state of the vascular system in convulsive diseases, is afforded us by GALEN, MORGAGNI, &c. PORTAL enumerates many alterations which he met with in the brain and spinal marrow after such cases, as collections of air and water, or of a gelatinous matter, engorgements of the blood vessels, extravasations of blood, inflammation, indurations, abscesses, tumours, &c.

* Opera, vol. i. pp. 496—7.

Baumes asserts that convulsions are much more frequent at the age of seven years; a period which he considers to be marked by a general revolution in the constitution of the child. Rosenstein and Tissot mark the period of eight years, as that most favourable to the occurrence of convulsions. Mr. N. is of opinion, that they much more commonly occur before the fifth year; which corresponds with our own experience.

According to our author, convulsions rarely appear during the night. It would seem to us, however, that we have as frequently witnessed this occurrence during the night as during the day.

The following symptoms are usually characteristic of that state of increased irritability, from which the occurrence of convulsions is to be anticipated. It will be observed, that during the day, the child starts at the most trifling noise; its sleep is disturbed by sudden cries; not unfrequently it sleeps throughout the day, and remains restless and entirely sleepless during the night: it now becomes feverish and irritable, quarrels with its companions, and derives but a momentary or no amusement, from its most favourite playthings. The eyes are frequently fixed, without being, apparently, directed to any particular object; or they are thrown upwards, and steadily fixed upon the ceiling. The pupil of the eye is sometimes for a moment contracted, and then suddenly dilated. When a candle is held close to the eyes, during the contraction of the pupils, Mr. N. has found the latter suddenly to dilate, and again, as suddenly, contract, the light being steadily continued close to the eye. The effect of light on both pupils is not always similar: one may remain fully dilated, while the other contracts; or one may remain stationary, the other being alternately contracted and dilated. Mr. N. states, that he has reason to believe, from repeated observation, that whenever a light is applied close to the eyes, and the same effect is not produced on both pupils, there is much cause to fear some serious affection of the head. An oscillatory motion of the pupil is, very frequently, one of the symptoms indicative of approaching convulsions. Upon viewing the position of a child during sleep, when, from the occurrence of the foregoing symptoms, we consider it predisposed to an attack of convulsions, we shall frequently find the limbs rigidly extended, the great toes and thumbs being turned inwards. The colour of the face varies frequently: at one

moment it is pale, at another highly flushed. For a short time the countenance expresses great animation; the eyes are vivid and glassy in appearance; when, suddenly, and without cause, the little patient appears languid and inclined to sleep. The breathing is irregular; long and deep inspirations, drawn with apparent difficulty, are alternated with a short and *catchy* breathing. This is usually accompanied by a fulness of the upper lip, and contracted appearance of the alæ nasi, by which the natural expression of the countenance is altered. The hands are frequently directed towards the nose, apparently involuntarily; the fingers are either in frequent and sudden motion, or are firmly pressed toward the palm of the hand; more frequently the thumb is contracted upon the palm, and the fingers extended and separated from each other. This state of firm contraction of the thumb, Mr. N. considers an almost certain indication that convulsions will occur "at some subsequent period," unless warded off by appropriate treatment. When the child is put to the breast, it sucks eagerly for a moment, then ceases suddenly, throwing back the head with an expression of anxiety in its countenance, or perhaps rolling it from side to side. p. 74. Deglutition appears to be performed with difficulty when these symptoms occur. Hickup is not unfrequently one of the premonitory signs of more general convulsions. Baumes regards it as a distinct disease, of sufficient importance to demand a separate consideration. Mr. N. has never seen this symptom alarmingly severe, of itself, in children, although sometimes troublesome from its frequency and long continuance. We have frequently met with hickup in children, and have never known it to produce any thing more than temporary inconvenience. It appears to us to be in general produced by a slight irritation of the stomach, resulting from too much or improper food. During dentition, children are frequently affected with slight convulsive movements of the muscles of the face, which give to the countenance an appearance of smiling. This symptom is frequently the precursor of well marked general convulsion. p. 131.

It is true, that each of the above symptoms may arise from a variety of causes, and be an indication of some transient derangement of health, without being necessarily followed by any decided paroxysm of convulsions. We have reason, however, to

anticipate the latter, from the concurrence of several of those appearances, and are then called upon to adopt the precautions necessary to prevent their accession.

The term "*inward fits*" is of extremely frequent use among nurses and parents, and it has even been adopted by some members of the profession. Dr. ARMSTRONG, in particular, has written very elaborately upon their nature and treatment; but he has certainly attached to those slight symptoms which are considered indicative of these inward fits, much more importance than their nature demands. It would appear to us, that very generally they arise, as stated by Mr. N., from collections of flatus in the intestinal canal, produced, probably, by some trifling derangement of the stomach, or by the use of improper food. LALLEMAND, PARISET, and MARTINET, are of opinion, that the symptoms referred by the vulgar to "inward fits," arise from an inflammatory affection of the arachnoid membrane; while BRACHET is inclined to adopt the term "*convulsions internes*," to designate the premonitory symptoms of the convulsive paroxysm.

It is frequently difficult to determine either the duration of a convulsive paroxysm, or the ultimate consequences of its frequent repetition. The most violent and frightful paroxysms sometimes pass off, without any serious injury to either the present or future health of the child. In other instances, the attack, apparently slight in its commencement, either destroys the child in a few minutes, or seems to pave the way for its subsequent death, by destroying the powers of mind and body. When, however, the convulsive attacks are slight, short in duration, and succeeded by the natural cheerfulness of the child, danger is seldom to be apprehended; on the contrary, when they are long continued, return frequently at short intervals, or gradually increase in violence, there is great probability of a fatal termination. If they leave the child dull and heavy in the intervals, we have cause to apprehend a speedy repetition of the attack.

When a child is suddenly destroyed during a paroxysm, Mr. N. has reason to believe, from the result of his observations, that death is occasioned by a condition nearly allied to apoplexy in adults: this is also the opinion of BAUMES. Death may likewise occur, in consequence of respiration being impeded by the irregular contractions of the respiratory muscles; the lungs then

become engorged with blood, and the circulation through them is interrupted and finally suspended. In some cases a state of syncope supervenes upon convulsions,* from which the child may never recover. Mr. N. fears, that in some cases, when a state of syncope has followed the convulsive paroxysm, that most horrible of all accidents, premature interment, has occurred. He refers to the instance related by Dr. JOHNSON, where a child in this state was recovered by frictions diligently applied to its surface near the fire, after having been laid out for interment.

Convulsions sometimes terminate by critical evacuations. Hæmorrhage from the nose not unfrequently puts a stop to the paroxysm. PLANQUE† relates an instance in which the paroxysms were constantly terminated by a copious hæmorrhage from the mouth, nose and ears. Their termination by diarrhœa has been most frequently remarked. Vomiting also, in the same manner, frequently produces the cessation of convulsions, by removing from the stomach the offending matter by which they were occasioned.

Although it is certain that children often recover from violent and long continued attacks of convulsive disease, with but little or no medical assistance, yet a spontaneous recovery can rarely, if ever, be anticipated; consequently, the best exertions of the practitioner are in every instance demanded, and the earlier resorted to, the more certain will be the success attending them. When convulsions are neglected until their frequent repetition has strengthened the natural or acquired predisposition to their recurrence, the best directed efforts of the practitioner will be unavailing.

The physician, called in *during* the paroxysm, can, in the opinion of Mr. N., do little, if any thing, towards arresting it; and but slender confidence is to be placed in any remedy that can be given to cut it short or relieve its violence. Consequently, his duty is confined principally to carefully observing, and alleviating those symptoms which have been described as indicative of an approaching attack. Although we would by no means wish to deny the importance of an attention to the premonitory symp-

* BRACHET sur les convulsions.

† Bibliotheque médicale. t. iii. pp. 504–5.

toms of the present or any other disease, and of guarding against its accession by a timely resort to appropriate means, yet we cannot agree with our author in his opinion as to the inefficacy of remedies during the convulsive paroxysm. It has been our lot to be called to many cases of convulsions in children, in which we feel fully persuaded, we have been enabled to do much by our treatment, towards reducing the violence, and retarding the march, of the paroxysm; nay, in some cases, have very promptly cut it short.

In our treatment of convulsions we should first endeavour, by a deliberate enquiry into every circumstance which may have been likely to derange the health of the child, to detect the source of the convulsive attacks; as it is by this, in a great degree, that our remedial measures are to be directed. To effect this important object, however, is always difficult and sometimes impossible.

If, from the result of our enquiries, we have cause to believe that the paroxysm has arisen from a retention of the meconium, appropriate doses of castor-oil, and the warm bath, will in general put a stop to it. According to Tissot, the discharge of the meconium may, in these cases, be prevented by a spasmodic constriction of the sphincter ani. Sharp has recorded some similar cases. In such instances laxatives are not indicated. The warm bath and emollient applications should be had recourse to. Mr. N. queries, whether a small portion of *extractum belladonnæ* might not be smeared around the anus with advantage.

In cases of convulsions dependent upon, or connected with, a constipated or loaded condition of the bowels, purgatives are of course demanded. The occasional employment of the warm bath, and a well regulated diet, will materially assist our efforts to procure regular evacuations. During the paroxysm, if purgatives cannot be administered by the mouth, injections per anum may be substituted, together with immersion in the warm bath.

Convulsions, and even epilepsy, have been mentioned as not unfrequently occurring from attacks of spasmodic colic soon after birth. In these cases purgatives will be required. The child should also be put into a warm bath, and have the abdomen freely rubbed with anodyne embrocations. If, after we have acted sufficiently upon the bowels, the paroxysms of pain still continue

severe, and convulsions are threatened, a dose of laudanum, proportioned in quantity to the age of the child, must be given: warm fomentations should also be assiduously applied. After a free evacuation of the bowels, we should in general prefer anodyne injections to laudanum by the mouth.

When convulsions arise from unhealthy milk, or improper diet, there will generally be decided evidence of great derangement of the stomach. In such cases purgatives will be first necessary, followed by light tonics. Frictions upon the abdomen with the warm hand, will frequently assist our other efforts to relieve the distressing flatulency and pain by which the child is tormented. By many, emetics are freely given in those gastric derangements of children which appear to threaten convulsions, not merely with the view of freeing the stomach from any offending matter, but also, to rouse the organ to more healthy action. Mr. N. is of opinion, that more advantage will be derived, in such cases, from the judicious use of purgatives. During, or immediately preceding, a paroxysm of convulsions, where we have reason to believe irritation of the stomach to be present from any matters contained in its cavity, we would consider an emetic a remedy in the highest degree proper, whenever it can be administered. Emetics are, however, certainly counterindicated, when symptoms of undue determination to the brain exist.

Mr. N. has observed simple derangements of the digestive organs of infants occasionally to produce paraplegia, preceded by convulsions, and followed by a state of coma. In three cases which fell under his notice, the bowels were costive and the stools very dark in colour. Calomel and jalap were given as purgatives; repeated frictions were made to the stomach and bowels; the children were immersed in a warm bath; and a mixture of rhubarb and gentian were subsequently prescribed. Complete recovery took place in all. When, from a deranged condition of the digestive organs, an acid is developed in the primæ viæ, calcined magnesia, a weak solution of soda, or a few drops of a solution of pure ammonia, will be proper.

In every case of convulsions the state of the gums should be carefully examined, and if they be found swollen, or firmly distended by an approaching tooth, the distressing irritation which is the almost invariable consequence, should be at once removed

by a free incision of the gums. An attention to this circumstance will frequently prevent a threatened, and almost instantly relieve a present, paroxysm. In some cases of difficult dentition, where convulsions were apprehended, Mr. N. has seen much benefit from the application of sinapisms to the feet. In cases where the irritation has been extended to the general circulation, bloodletting will be demanded; particularly in robust and plethoric habits. Lind and Baumes recommend ptyalism induced by mercurial fumigations, in cases of difficult and painful dentition. We confess we should not be inclined to imitate the practice.

When convulsions are traceable to the irritation of worms in the intestines, the indication is evident; but unfortunately we have no vermifuge medicine upon which much reliance can be placed; we believe the best, in these cases, to be pretty active doses of calomel and jalap, preceded by the spirits of turpentine. The latter article has itself been recommended by Copland as a remedy in infantile convulsions, especially when dependent upon a deranged condition of the alimentary canal.*

When convulsions are produced by the repulsion of eruptions, or from the drying up of any habitual cutaneous discharge, we should promptly produce irritation of the skin, by means of blisters, stimulating embrocations, or the tartar emetic ointment: the warm bath in these cases will also be beneficial.

If it be apparent that convulsions depend upon some cause which has acted immediately upon the brain, the treatment is not to be "blindly empirical:" we are not at once to resort to large and frequent bleedings, and enormous doses of calomel, without appropriately modifying our treatment to the case, according to individual circumstances. In many of these instances, where the child is of a very weak and delicate constitution, and more disposed to excessive irritation than to inflammatory action, we must rather seek assistance from the soothing effects of the milder sedatives, and cold applications to the head, with sinapisms or blisters to the feet.—p. 144. But if the child be robust and of a plethoric habit, with the head hot and disproportionately large, the carotids throbbing, the countenance flushed, the eyes sparkling, and projecting from their orbits, particularly if he sink into

* See London Med. and Phys. Journal. Aug. 1821.

a state approaching to coma, after any unusual agitation, we have, then, reason to fear a hazardous determination of blood to the brain, and we must proceed accordingly. With these symptoms present, whatever may have been the original cause of the paroxysm, local or general bleeding, or both, will be demanded, according to the intensity of the symptoms and the constitution of the child.

In these cases, we should in general recommend the division of one or both of the temporal arteries. The impression upon the vessels of the brain from this mode of bleeding, is much more prompt, and effected with a much less loss of blood, than from any other; while the operation is far more simple and less hazardous than that of opening the jugular vein in a child labouring under convulsions. Mr. N. very properly objects to any reliance being placed upon the use of leeches, but advises taking blood from the jugular vein, or the application of cups to the temples, or behind the ears. It is impossible to determine, by any abstract rules, the amount of blood necessary to be drawn; this must, therefore, be left to the judgment of the practitioner. We are to be guided principally by the action of the carotids; the violent and continued throbbing of which, even at the moment when the pulse at the wrist is almost imperceptible, will be a sufficient proof of the necessity of still further depletion. p. 150. According to Mr. N., during a convulsive paroxysm, we are to abstract blood only when an undue and dangerous determination of blood towards the head actually exists, and never with the intention of lessening the violence of convulsive action; the violence of these attacks, he remarks, not always being in proportion to the strength of the constitution. p. 139. This rule is far too general. In cases of convulsions of extreme violence, occurring in strong, robust and otherwise healthy constitutions, where there is nothing to effect but reducing the violence and shortening the duration of the paroxysm, as by the continuance or frequent repetition of convulsions, the brain is very liable to suffer, even as a precautionary measure, venesection in such cases would be indicated.

In cases of undue determination to the head, the child, after bleeding, should be kept as quiet as possible; as a state of great irritability frequently succeeds, which from even the slightest exertion, may occasion a repetition of the convulsions. p. 151. The

bowels should be freely acted upon, by proper doses of calomel combined with jalap; purgative glysters are also useful auxiliaries. By some practitioners the milder purgatives are preferred to calomel, in the convulsions of children; Mr. N. very properly remarks, that the former, it is true, may produce copious evacuations, but they do not like calomel guard against the intestinal irritation, which is so common in young children, from the quick accumulation of vitiated mucus, nor do they restore a deficient, nor correct a morbid, secretion of the bile. Mr. N. however, deprecates the administration, in these cases, of large and repeated doses of calomel every two or three hours, from an idea that this remedy is capable of acting as a specific in convulsive affections, independent of its purgative properties. What Mr. N. may conceive to be a large dose of calomel we know not; but in every case of violent convulsions, connected with undue determination to the brain, whenever the power of swallowing remains, the article should, undoubtedly, be administered in *a full dose;* and if, on being followed up by castor oil, the compound senna tea, and laxative injections, it does not promptly and freely act upon the bowels, we would consider it highly proper to repeat it to the same extent.

In every instance where symptoms of undue determination to the brain are present, the best effects may be anticipated from the application of cold water to the scalp. The whole of the scalp should be completely wetted with a large sponge, soaked in spring water, and frequently changed; or pounded ice in a bladder may be applied. If, under this constant application of cold, the cheeks become pale, and the head cool, its use should be discontinued, and again renewed, whenever the flushed cheek and heat of the head indicate a local determination: at the same time that cold is applied to the head, the other parts of the body should be carefully kept warm. p. 156. It is a common, and no doubt, highly beneficial practice, with the French physicians, to put the little patient into a warm bath, while cold water, or even ice is applied to the head.*

In cases where there was evident determination of blood to the head, *without any* general excitement, which is a state we fre-

* See particularly PIORRY sur l'irritation encephalique des enfans.

quently observe in children, Mr. N. has seen the best effects from blisters to the calves of the legs, or between the shoulders. Blisters to the head, he conceives, would be decidedly prejudicial. The employment of epispastics to the scalp, in affections of the brain, so common a practice with British practitioners, is very strongly, and we conceive justly, reprobated by the French and German physicians: they, in general, prefer sinapisms, stimulating applications, or perhaps small blisters to the inferior extremities. In the opinion of Mr. N., the British physicians have too little confidence in the powers of sinapisms applied to the feet, when there is a state of great cerebral excitement to be contended with. In many cases, both in children and adults, he has found them very powerful auxiliaries. Of their good effects we can bear similar testimony; and we have also, we conceive, derived much advantage from their application over the epigastrium, in many cases of convulsions, even when the brain did not appear to be much oppressed with blood. Together with the foregoing remedies, it is all important, that the *diet* of the child be light as possible. Animal food should be entirely prohibited. The patient should be kept in a darkened room, neither his mind nor body being stimulated by noise or exertion. After we have carried the above plan as far as circumstances will admit, we shall still frequently find a strong predisposition to a return of the convulsions. The determination to the head may be removed, and no apprehension entertained from increased vascular excitement, yet will there remain, frequently, a general state of irritability, in which the brain particularly participates: the child is sleepless, and exceedingly fretful, and its pulse small and rapid, while slight twitchings of different muscles and tendons will be detected on strict examination. For a moment or two the carotids beat violently, and then suddenly with great languor. The countenance is generally pale and distressed, and the brows wrinkled. Under this state of things, Mr. N. considers further depletion absolutely prejudicial; and he recommends, in place of it, the administration of sedative medicines, of which he considers small doses of pulvis Doveri to be the best. He has frequently experienced, also, much benefit from extractum cicutæ, or hyoscyami, in conjunction with alkalies; but these will sometimes fail in relieving the irritable condition of the system, when the pulvis Doveri will succeed.

Dr. BRACHET almost entirely confined himself to the use of henbane, always combining it with the oxydum zinci, varying the doses according to the intensity of the symptoms, and the constitution of the child. Two grains of flores zinci, and four of extractum hyoscyami, divided into four doses, and one given every two or three hours, are the medium proportions for young children. Dr. B. never carried the dose of either article, beyond ten grains in the twenty-four hours.

The foregoing practice may, undoubtedly, be proper under the particular circumstances detailed; but the young practitioner cannot be too forcibly impressed with the impropriety of commencing with opiates, before every symptom of undue determination of blood to the head, local irritation of the brain, or general arterial excitement, are fully subdued, and every source of irritation removed from the bowels. The worst consequences may be apprehended from the effects of narcotics prematurely administered. In exhibiting this class of remedies to children, we should always commence with the utmost caution, and progressively increase the dose: so variable are their effects, especially in infants, that in each case, it is only from the operation of the remedy, that we can determine the propriety of its continuance, or the dose in which it is to be given.

The *diet* of the child, in this state of irritability, should be nutritive, but unstimulating and easy of digestion: our author prefers light solid food, if the child be sufficiently old. When symptoms of acidity in the primæ viæ are present, alkaline medicines will be of great service. Light tonics will then also be required; as infusion of columbo or gentian, combined with infusion of rhubarb and the carbonate of soda. p. 168. The German practitioners extol highly the oleum succini, in cases of great infantile irritability unconnected with local disease.

Where convulsions return from force of habit, and from nervous irritability, unconnected with any serious local affection, the oxide of zinc combined with cicuta may be employed with much confidence. p. 169. BRACHET, in several cases, entirely prevented, by the long continuance of a similar prescription, the return of convulsions, to which the child had been subject for a very considerable time. Mr. N. has found much benefit from sulphate of quinine, combined with extractum conii or

hyosciami, where a great predisposition to convulsions existed, from considerable debility and irritability of constitution. In two or three cases, when he has seen children in this state of weakness and irritability, with every symptom of approaching convulsions, Mr. N. has reason to believe, the experiment of compressing the carotids has been attended with good effects: he recommends its trial in all cases of a threatened paroxysm, where the symptoms do not demand, or would not justify blood-letting. Dr. Parry has referred, with approbation, to the practice, in the treatment of adults; and Dr. Bland has published two cases in which it was had recourse to in children, with the most gratifying results.*

When convulsions have been produced by the excessive loss of blood, cold applications should be made to the head, which part should be elevated considerably by means of pillows; the bowels should be gently acted upon; and we may administer, with much confidence, small doses of carbonate of ammonia with extractum conii or hyosciami, according to the age of the child. The most perfect tranquillity of mind and body should be enforced, and the chamber kept darkened. p. 191.

If we have reason to believe the convulsions have arisen from the imprudent use of opiates, it is all important not suddenly to omit them, but gradually to discontinue their use. p. 184.

When convulsions occur in children in the course of febrile diseases, we are advised by many authorities to apply blisters freely. Mr. N. cannot conceive the principle upon which this practice is recommended: he strongly objects to the use of blisters in all cases of general fever and local inflammation occurring in children. "If blisters, indeed, were never applied to children, in any case whatever," he considers that "much less evil would arise from the want of them, than is, in common practice, daily, or perhaps hourly, inflicted by their use." p. 203. Cases of coma, from presumed oppression of the brain, are *those only* in which he will allow that any degree of reliance can be placed upon blisters in infantile diseases, and in which we need not apprehend from them *bad effects*. p. 204. We confess that we are not now in the habit of resorting to blisters so frequently in the

* Medico-Chirurgical Journal. April, 1819.

febrile and inflammatory complaints of children, as during the first years of our practice: the reason has been, because we have found the extensive application of leeches very generally to obviate the necessity of their employment. Nevertheless, we insist upon it, that cases of general fever, as well as of local inflammation, do occur, in which blisters, subsequent to due depletion, constitute an indispensable remedy: in such cases, we have employed them sufficiently often to know, that, when judiciously timed, they are productive of the most beneficial effects. We would not pretend, however, to advocate their application, *merely* because convulsions are present.

Dr. CURRIE has asserted, that from eight years experience, he has found the cold bath very efficacious in removing the convulsions of children, from whatever cause they may arise: he has more reliance upon it, however, in cases of general convulsions, than when the attack is partial. Mr. N. confesses he would be unwilling to plunge a child of a delicate and enfeebled constitution, labouring under convulsions, into a cold bath; and we should consider it, in most cases of infantile convulsions, a hazardous experiment. When, after repeated attacks of convulsions, the strength of the child is broken down, and the recurrence of the paroxysm appears rather to be dependent upon the force of habit, and nervous irritability, than upon any local cause of irritation, the cold bath employed once a day, together with change of air, and tonic remedies, will then be indicated. When the constitution, however, is much enfeebled, we shall rarely, if ever, be justified in plunging the child into a cold bath, without preparation. We should then commence with water of a tepid warmth, and gradually lower the temperature, according to the effect produced. In more than one instance, Mr. N. has known children thrown into convulsions, from the excessive agitation they have suffered at the anticipation of the cold bath. p. 180.

During a paroxysm of convulsions, Mr. N. considers, that opiate frictions upon the chest and abdomen, may be of much more service than any internal remedy. The external use of opium, in cases of infantile convulsions, is highly spoken of in the 5th volume of the Journal General de Médécine, p. 148.

Some writers have recommended us to act, purposely, upon the mind, in order to cure convulsive affections. The occasional

success of this experiment has been more than once recorded. Such a practice should, however, be always viewed as dangerous and unjustifiable. p. 89.

Capuron informs us, that chronic convulsions have been cured by the appearance of the crusta lactea; and it has been suggested by Professor Œtinger, that children might be inoculated with the humour of this disease. We know not that the experiment has ever been tried. M. Husson, in his researches on the vaccine disease, has recorded two cases, in which the appearance of the vaccine vesicle entirely freed the patients from convulsions, to which they had been subject for several months, and which had resisted all the ordinary methods of treatment. Similar instances may be found in the French reports on vaccination, from 1812 to 1815, inclusive.

In the course of his treatise, Mr. N. more than once speaks, in rather vague terms, against the too long continuance of active purging in children; to which he ascribes the most serious injury as a consequence. Dr. W. Nichol has adverted, we are informed, to this subject: he has seen the erethismal state of the brain,* which he considers to be the frequent cause of convulsions, kept up, if not induced, by powerful purgatives, which, in common practice, are repeatedly given *where there is no indication* for their employment. p. 177. While we admit the impropriety of, and injurious consequences resulting from, excessive or unnecessary purging, under any circumstances, and in all diseases—while we can easily conceive, that the morbid irritation from the inordinate action of powerful purgatives may be either the predisposing or exciting cause of infantile convulsions, yet we must at the same time insist upon their free, active, and even "continued," but judicious use, in many of the convulsive diseases of children. Their proper employment, no doubt, requires much judgment on the part of the practitioner; but this is a proposition equally true in respect to every active remedy.

The means of guarding against, and, in some measure, of coun-

* By *erethism* of the brain, this author indicates a peculiar *irritation*, independent of inflammation, of "the cerebral structure," or of "any perceptible increase in the quantity of blood that flows through the cerebral vessels." North, p. 122.

teracting the predisposition of children to convulsions, will depend entirely upon a judicious course of conduct, pursued from the hour of their birth, in relation to their diet, clothing, exercise, cleanliness, the air they breathe, and indeed every circumstance connected with their moral and physical education. Some highly judicious but very brief remarks, in regard to some few of these points, will be found in the work of Mr. N., copied principally from STRUVE:—we have not sufficient room to allow us to notice them.

Infantile Epilepsy.—This constitutes the subject of the third chapter of Mr. NORTH's essay. We find nothing, however, in the author's remarks very new, or which tends in any manner to throw additional light on the pathology or treatment of this truly afflictive disease. For this reason, and from want of room, we shall not consider them.

In the fifth and last chapter of this treatise, Mr. N. describes a "*peculiar disease, dependent on a spasmodic affection of the chest and larynx, in young children, accompanied by general or partial convulsions.*" Many instances of this very distressing variety of convulsive affections have fallen under his notice. The "acute asthma" of MILLAR and CHALMERS bears, in many respects, a strong resemblance to it; though evidently not the same disease. It is believed the term "chronic croup" has frequently been applied to the affection to be described. The premonitory symptoms occur at an uncertain period, generally between the third and seventh month. At first, they may not be sufficiently striking to attract the particular attention of the friends, though the practitioner, who has met with similar cases, may with much confidence predict from them the series of symptoms which is subsequently to be developed. When the child awakes from sleep, the breathing is, for some moments, unusually accelerated, and accompanied by that kind of noise which an increased secretion of mucus in the respiratory passages would produce. If previously in good health, the characteristic rotundity of feature observed in infants, quickly undergoes a remarkable change, the countenance becomes anxious, the sides of the nose are drawn in, the face is pallid and emaciated, the child frowns almost constantly, and when put to the breast, it sucks greedily for a moment, but suddenly ceases, throwing back the head with violence. Whatever may have been the previous condition of the bowels, they now be-

come constipated. A considerable time may elapse before any remarkable change takes place in these symptoms. A convulsive affection of the hand is usually the next morbid sign which excites attention. The thumb will be found constantly and firmly pressed upon the palm of the hand; the wrists and ankle joints are rigidly bent inwards; the head is almost constantly thrown backwards, by which the anterior muscles of the neck are kept painfully upon the stretch. The inconvenience at the moment of waking is not now a mere acceleration of the breathing; this symptom continues in an aggravated degree, but the inspirations are attended with a loud crouping noise, which may be heard in an adjoining apartment. The chest and larynx appear to be painfully constricted; the heart palpitates violently; the child sobs, but during the paroxysm, never cries in its natural manner. So great is the difficulty of breathing, that sometimes it appears to be totally suspended for a few seconds; the countenance being unusually pale, as in a state of syncope. Sometimes, but more rarely, it is dark, and the vessels of the face turgid, as in apoplexy. The child has frequent attacks of convulsions, during which the features are much distorted. The whole body is sometimes, but more rarely, implicated in the convulsive movements. The paroxysms vary in duration and violence. In the child of Mr. LAMBERT, the convulsions were very severe and frequent, and the state of opisthotonos was so complete, that for many days the head and heels were the only parts which touched the bed. The anxiety of the countenance, at first only occasional, becomes, in the progress of the complaint, constant, and very strongly marked. The brow is constantly knit. In the majority of cases no sustained febrile action is to be detected, nor is there usually any indication of particular determination of blood to the head. In two cases, however, Mr. N. has met with both, in addition to the usual train of symptoms. In several instances Mr. N. has known the prominent symptoms of the disease continue, without intermission, for many weeks. pp. 254—9.

In many cases it may be difficult, or even impossible, to assign the probable cause of this frequent variety of convulsive affection. Our author believes it to be frequently immediately connected with painful dentition. He has known, in several instances, all the symptoms gradually disappear upon the appearance of the

teeth; and instant relief will frequently be afforded, if the teeth are sufficiently advanced to admit of the gums being freely divided. The disease very seldom terminates fatally. Mr. N. has met with but one such case. In this instance, dissection discovered the vascular system of the brain morbidly turgid, a small quantity of blood effused under the dura mater, in several places, and a small quantity of blood effused in the ventricles. The whole cerebral mass was particularly firm; the cerebellum softer than usual. The thorax was not examined. The only morbid appearance in the abdomen was seated in the liver; its whole substance was firm, and upon its upper surface were three white spots about the size of a sixpence, which felt, on passing the scalpel over them, like cartilage. During life, no symptoms were observed in this case, indicative of increased determination of blood to the head. p. 265. CAPURON, who has described the disease more nearly than any other writer with whose works Mr. N. is acquainted, observes, that upon dissection, no traces of inflammation are to be discovered; neither is there any collection of mucus met with, in the aerial passages, or in the lungs.

The disease before us has, occasionally, been confounded with croup; but it is essentially different from it. A very moderate share of attention and practical knowledge, will be sufficient to prevent the two maladies from being mistaken for each other. p. 263.

The pathology of this painful and obstinate affection is still doubtful. The great frequency of it certainly renders it a subject well worthy the mature consideration of every practitioner engaged in the treatment of infantile diseases. In a note to p. 271, Mr. N. remarks, that while his work was passing through the press, a case occurred to his notice, from which it must be inferred, that the peculiar train of symptoms which have been detailed, are sometimes intimately connected with derangement of the digestive organs; the disease entirely ceasing upon a free action being produced upon the bowels by purgatives.

In regard to the general treatment, the disease being in a great majority of cases connected with painful and tardy dentition, the first important step is a free division of the gums, in every instance in which they are swollen, or much expanded upon the surface. 274. Mr. N. has frequently known all the prominent

symptoms of the case instantly to subside upon freely lancing the gums. The gum must be perfectly divided down to the projecting tooth, or no benefit need be expected from the operation. If the lancet, with which the division is made, has been for some time in use, and has lost its edge, relief may, more confidently, be expected. p. 274. A common pen-knife is recommended by Harris, and is, indeed, a very appropriate and convenient instrument. A simple straight incision will be sufficient for the incisores and canini, but we should always make a crucial incision when it is our object to liberate the molares. Constipation forms a usual feature of the disease, and must, necessarily, be removed by active purgatives. If we have evidence of hepatic derangement, the stools being of an unnatural appearance, one grain of calomel, each night, may be given with much advantage. p. 277. If danger be apprehended from cerebral derangement, in consequence of the particular predisposition of the child, or the violence and frequency of the convulsive paroxysms, blood must be drawn from the jugulars, or by cups applied to the temples; followed by cold applications to the head, and occasional purgatives; all external or internal stimuli being carefully guarded against. Relief is rarely to be obtained from opiates. If we were to employ a sedative, Mr. N. would prefer extractum conii, or hyosciami. In some cases, where the convulsive breathing and violent action of the diaphragm are very great, frictions upon the chest, with a liniment composed of laudanum, spirits of camphor, and soap liniment, three or four times a day, have certainly proved useful. p. 280. From the application of blisters Mr. N. has never known any relief to result. After the more severe symptoms have passed off, the child will still be found, in some instances, even for several months, to awake from sleep with short and convulsive breathing, and an appearance of much agitation. In more than one case, Mr. N. has known the attack return, with all its original severity, in consequence of the infant being suddenly awakened, either by accidental noise, or by the imprudence of the nurse. It is of importance, therefore, that those who have suffered from this disease, be roused from their sleep with gentleness and caution.

MEDICAL LITERATURE.

RETROSPECTIVE REVIEW.

ARTICLE IX.—*Elementa Physiologiæ Corporis Humani. Auctore* ALBERTO v. HALLER, &c. &c. Lausannæ, 1757—66. Tom. VIII. 4to.

THIS immense literary enterprise, the completion of which cost its excellent author six and thirty years of the most vigorous part of his life, has hitherto yielded to him only a portion of that reputation, for which he toiled so laboriously: it is grievous to think, that so much labour, and so many sacrifices, offered at the shrine of medical reputation, should have left to DE HALLER, after the lapse of about fifty years, only that indistinct and undefined renown, which is possessed in nearly an equal degree, by many an ancient sage, whose name has been borne down to our later times by the faint whispers of tradition. The *name* of HALLER is occasionally pronounced, perhaps with some vague allusion to his doctrine of irritability, or with a heartless comment on the size of his great work; while that work is scarcely consulted, almost never read, and frequently not heard of, by practitioners of an art, whose interest and extension was the fondest wish, and successfully employed nearly the whole lifetime, of its amiable and accomplished writer. The breath of popular favour, which once sounded his fame through every part of the civilized world, has almost forgotten to breathe it, and the solid basis of imperishable renown, which he laid in this great effort of patient toil, has been seized on by others, and appropriated to new and more fantastic superstructures; but posterity will clearly distinguish the Doric truth and simplicity of the great original, amid all the embellishments which a less classic taste has impressed upon it. Future ages will regard him, as he may be justly regarded, as the reformer of medical science, and the founder of physiological pathology, as distinguished from the chemical, mechanical, and psychological phantasms of the ages which preceded him.

It is a standing reproach to British and French medical literature, that no translation of the Elements of Physiology has ever been made into their respective languages; and we can hardly persuade ourselves, that not more than ten or fifteen copies of it are extant in the United States of America; a circumstance not owing to any impossibility of procuring it, for many editions have been published, all equally good, and at a price which puts it within the reach of almost every student.*

At the commencement of the eighteenth century, STAHL and HOFFMANN, the leading teachers of the period, were busy in maturing and promulgating the psychological and mechanical doctrines of physiology; which, being mere systems, devoid of any solid or substantial basis of observations and experiments, could do but little towards the invention and establishing of a sound pathology. GLISSON had indicated, by his writings on irritability, the true path which might lead them to exact knowledge of the nature and causes of vital action; but the inherent and underived nature of vital activity, was a proposition too much opposed to the Stahlian system, to permit the great psychological apostle to adopt it: and HOFFMANN, satisfied that the contractile phenomena of living bodies must result, by a mechanical necessity, out of the structure of the organs, had no researches to make beyond those physical arrangements, which, by a more perfect development, might illustrate the plans laid down, not in the volume of nature, but in diagrams and lectures.

BOERHAAVE, whose genius and industry, directed in the proper channels of observation, might have done much in reforming the science, attempted in vain, by an eclectic course, to unite the currents of opinion into one harmonious and permanent system; his success was thought to be complete, while by his presence, his eloquence, and personal influence, that theory was sustained and promulgated in every part of Europe: but these influences had hardly been withdrawn, when his illustrious pupil effected the total ruin of the humoral pathology, by firmly establishing that of the solids; a reform which is unquestionably due to his publications on the sensible and irritable parts of the human body.

* About eighteen dollars the set, in Paris, 1818. Vide BRUNET *Manuel du Libraire.* A copy was sold here in Dec. 1826, for four dollars.

Stahl, Hoffmann, and Boerhaave, had then settled nothing; Glisson had been neglected or forgotten; and the great question still to be decided was, as it had been from a very early period, whether an immaterial principle, an inherent quality, or some physical necessity, exercises the power of vital contractions in living bodies.

Our former review of the work of Glisson, placed the opinions of the preceding ages in a sufficiently clear light, to exhibit, at least, the principles on which these discussions had proceeded. He had clearly announced the existence of irritability; but it was left for De Haller to reduce that property within its just limits, to explain and illustrate its true character, and by a severe course of observation and experiment, made with the utmost carefulness, and recorded with scrupulous fidelity, to convince his readers, that on this basis depends, in a great measure, all true pathological application of medical principles.

The subject of vital contractility had attracted his attention as early as the year 1739; and his ideas concerning it had, by means of his pupils, become known over many parts of Europe, before he published the celebrated essay on the "sensible and irritable parts of the human body." This paper was read before the Royal Society of Sciences of Göttingen, on the 22nd of April, 1752; and appeared in the second volume of their transactions, in 1753. In this discourse he clearly defines the meaning of irritability, when he says "I call that an irritable part of the human body which becomes shorter if *touched* by some foreign body: it is very irritable if a slight touch, and not very irritable if a strong contact, is necessary to make it contract."

Nothing can be more precise than this definition. Haller may have been wrong in choosing a word which is liable to so many constructions; but as irritation applied to a nerve, or to the skin or mucous membrane, excites in these several parts no motion, but only sensation, a sufficient line of demarcation was supposed to be fixed for the two properties, irritability and sensibility. A little attention bestowed on this subject, would, however, remove all liability to misapprehension of the respective values or import of these terms; an attention, however, which is rarely given, as we daily have occasion to regret, in view of the uncertainty and looseness which prevail concerning these properties, in writings and in

conversation. Sensibility is defined in the following manner: "I call that a *sensible* part of the human body, a contact with which by a foreign body, is made known to the soul; and in brute animals, of whose souls *non perinde liquet*, I call that a *sensible* part, which, being irritated, causes the animal to exhibit manifest signs of pain or inconvenience. That is an insensible part, on the other hand, which, being burned, cut, punctured, and lacerated, even to a degree of disorganization, excites no convulsion, nor any change of posture, in any part of its body."

With this clear and intelligible exposition of his meaning, he proceeds to state, that experiment and observation are alone capable of teaching us to distinguish those parts which are irritable from those which are sensible, and to point out such as possess both irritability and sensibility. With this view, he had been almost incessantly employed; having from the commencement of 1751, made experiments on 190 living animals; besides engaging his numerous friends and pupils in the same objects of inquiry. From these numerous and diversified operations it results, that no tissue of the human body is capable of contracting itself upon the application of a stimulus or irritant, except the muscular fibre; and that whenever this contractile phenomenon is demonstrated, there is proof of the existence of the muscular character; and further, that this contractility, is an *inherent* property of such tissues; the best name for which is *vis insita*, inherent force, or *vis propria*, proper force, characteristic force.

The vis insita of HALLER received, in his own day, the name of irritability; not because he even approved of that denomination, which he probably foresaw might produce much confusion and disorder, as has been abundantly verified in after times, when, in order to be understood, it is, and must be, specifically called Hallerian irritability, to distinguish it from sensibility. It was, by WHYTT and others, even then warmly contested, that no such force could be proved to exist, and that what he called vis insita, was only a part of sensibility. But DE HALLER we think has clearly separated them, as we shall attempt to show after him.

The church has pronounced, that the soul is a whole in the whole, and whole in every part—Anima est tota in toto, et in qualibet parte, tota—and MELANCTHON, citing this creed of the church, admits it to be correct: but he finds no difficulty or ab-

surdity in the opinion, which affirms the existence of a sentient and vegetative soul, which they consider to be a mere *crasis* or *entelechy*.* Such an opinion was entertained by GALEN; who admitted three sorts of souls, or three divisions of one sort, to wit, an appetitive, an irascible, and a rational. The appetitive resides in the liver; and is busy about food, drink, love, and sensual gratifications. The irascible resides in the heart; where it burns with the desire of liberty, victory, power, dominion, glory, and honours. The rational soul, in the brain, is conversant about the love of truth, science, letters, and all moral good. Yet all these sorts of soul, are nothing but a crasis or temperament, a compound of the four primary qualities, varying with the varying predominance of one or another of these qualities, and perishing along with their dissolution. That learned pagan allowed no supremacy in respect of its duration, even to the rational soul, over the irascible and appetitive. "Si igitur," says he, "pars animæ capax rationis, una cum corporis temperamento mutatur, certe, mortalem speciem animæ, non solum gerere morem corporis, sed corporis etiam esse temperiem, censendum est."†

Dr. WHYTT must have been led, we think, to somewhat similar metaphysical conclusions, if he had followed out the doctrine which he lays down, in his treatise on the vital and involuntary motions. In speaking of the one sentient and intelligent principle, as opposed to HALLER's vis insita, he remarks, "that this principle operates upon the body by the intervention of something in the brain or nerves, is I think likewise probable; though as with regard to its particular nature, I presume not to offer any uncertain conjectures. I shall only observe that, perhaps, by means of this connecting medium, the various impressions made on the several parts of the body, either by external or internal causes, are transmitted, and perceived by the mind; in consequence of which, it may determine the nervous influence variously into the different organs, and so become the cause of all the *vital* and *involuntary* motions, as well as of the animal and voluntary. It seems to act necessarily, and as a sentient principle, only when its power is exerted in causing the former; but in producing the

* MELANCTHON de anima.

† GALEN lib. de anim. morum.

latter, it acts freely, and both as a sentient and rational agent."* That is, the soul is a sort of crasis, or temperament, whose actions are the result of a physical necessity, at least in some cases. Certe, mortalem speciem animæ, non solum gerere morem corporis, &c. as GALEN says.

We have cited this, to show how difficult it is for those who propose the human soul as the vital principle, and cause of all irritative contraction, to reason consistently; for even this acute writer has been obliged to sever his one sentient and rational principle, into as many sections as an Aristotelian or Galenical metaphysician would have done; videlicet, into a sentient, a sentient and rational, and a purely rational entity. The extract also serves to put in a proper view the opinions which HALLER had to combat in the establishment of his doctrine.

He could not be satisfied with the complex irritability of GLISSON, who had confounded with that property every sort of contractile phenomenon, whether vital or purely physical; neither could he admit the dominion of the intellectual and immortal soul, which can "survive the wreck of matter and the crush of worlds," over motions, which occur not only in man, but in as large or even greater perfection in birds, in beasts, and in the lowest order of creeping things. He perceived that there are several kinds of contractile phenomena in living bodies, which must be rightly distinguished from each other, before a correct view of the whole can be enjoyed by the physiologist or the physician; that there are parts which have a perpetual, a never remitted tendency to approximation or condensation, as proved by their immediate retraction when divided with a sharp instrument; that this property is independent of general life, and consequently of the soul; that there is a contraction, or tendency to condensation, which we can excite by the application of irritants or stimuli, but which no effort of the will can either increase or diminish; and that there are parts which possess in common this last named property, and the additional property of being excited by the will.

As the phenomena are different, there must be a difference in the nature of the powers. He arranges them under the four following heads:

* WHYTT's works, p. 153.

1. Vis contractilis in universum.
2. Vis mortua.
3. Vis insita.
4. Vis nervosa.

The first is a mere physical force, or cohesive attraction, possessed in common by animals, vegetables, and minerals, totally independent of vitality, and therefore claiming no special relation to a physiological subject.

The 2nd, or vis mortua, dead force, power of dead animal tissues, approaches more nearly to the cause of muscular action. It tends perpetually, in a *living* animal, to approximate or condense the particles of the tissue which enjoys it; and lasts, in a *dead* animal, as long as the *moisture* lasts; but disappears in the drying of the part which owns it. When a wound is made in the skin, this vis mortua retracts the edges; when a muscle is divided, it also assists in separating the cut surfaces, but is not the sole occasion of the retraction in this case. It keeps the peritoneum in a proper degree of tension; also the mediastinum, cellular tela, skin, &c. &c. He expressly informs us, *Physiol.* vol. iv. p. 444, that this force is wholly independent of vitality for its existence; for though it is more manifest in moist living animal substances, it also exists in amputated limbs, in extirpated muscles, and in membranes long after complete death. To this power he also refers that contraction, which takes place when a tendon, piece of skin, &c. are thrown into the fire, and which Bichat has called crisping force or *crispation*. It resides in every particle of the human body; unless the hardest and softest parts may be excepted, as the bones and teeth, and the brain. The difference between this and irritability, consists in this; that it exerts itself always, it cannot be directly affected by means of irritations, it is not irritable. This vis mortua is, in no discoverable respect, different from Bichat's *contractilité par defaut d'extension*, or contractility of tissue, as it is called in many places. Haller does not confound this force with any vital action, but clearly asserts that it is not dependent on life for its existence. Bichat too expressly asserts, that extensibility and contractility of tissue are independent of vitality, inasmuch as they exist as long as the organ exists*—long after death. While on this same

* Bichat. Recherches sur la vie et la mort. p. 77.

subject, he remarks, "Most authors have confounded the phenomena of this sort of contractility, with those of insensible organic contractility, or tonicity; such are HALLER, BLUMENBACH, BARTHEZ," &c.

We do not perceive the justice of this charge. HALLER, it is believed, made nearly if not quite as accurate discriminations, on this head, as the ingenious Frenchman: indeed they seem to be nearly of the same mind in relation to it. HALLER, like BICHAT, has shown that a muscle may contract from vis mortua, vis insita, and vis nervosa; or, to use the version of BICHAT, from contractility of tissue, organic contractility, and animal contractility. When the illustrious baron grants to the absorbents, and to many small vessels, the irritable property, he does the same thing that BICHAT does; who makes a discrimination of degree only, between sensible and insensible organic contractility. With what justice then can he be accused of confounding properties in this matter? He has not gone so far as BROUSSAIS; but we reject as mere subterfuge the argument of BROUSSAIS, who attempts to reduce under the head of vital contractility, every movement of contraction, except the molecular movements, which result from the laws of vital chemistry. The resiliency of the brain, the disappearance of the alveoli, the tension of the mediastinum, &c. are not to be reduced under the head of vital contractility, because they are "necessary to the exercise and maintainance of the functions which contribute to the preservation of life."* A pudding has as much contractility as can be detected in the brain as a whole:—we mean not to include the contractility of its vascular apparatus. We see no particular necessity or philosophy in the belief, that the gelatine and albumen in our skins and blood, as such, is any more alive than the glue in any carpenter's shop. M. BROUSSAIS has carried his doctrine too far, in including under the domain of vital power, all sorts of contractile phenomena: he is even somewhat Stahlian, when he considers the vital power as something which existed anteriorly to the properties, or rather anteriorly to the fundamental property, of the tissues. It is enough to make them proceed pari passu.

The third species of contractile power recognized by HALLER,

* BROUSSAIS' Physiology, 22.

is the vis insita, or inherent force, commonly called Hallerian irritability.

The following is an abstract, much of it in his own words, from the Physiologia, vol. iv.

In living, or recently killed animals, if a muscle be exposed by dissection, there frequently appears a spontaneous, rapid, and vivid motion, by means of which, different fleshy bundles of it are alternately contracted and relaxed, so that the ends of these fibres, by turns, approach and recede from each other.

This movement is not always to be seen in an exposed muscle, but it may always be produced if an irritation be applied to the flesh. This irritation may be a touch, or a prick with a pin, it may be a few grains of salt, or it may be alcohol, or cold air, or heat, or any kind of stimulating substance.

In the long muscles this motion, when once excited, generally is continued with alternate relaxations for some time, growing weaker and weaker until it ceases entirely. But in hollow muscles, when once excited, the contractile movement goes on steadily diminishing the cavity of it, without these alternations.

In like manner with the vis mortua, this inherent force continues after *death;* and seems to have no limit, short of that degree of cooling after death, by which the fat becomes congealed, beyond which state it cannot be excited again.* The vis mortua depends not on the cooling, but on the drying of the tissues for its limit of duration; the vis mortua also cannot be excited by stimuli, which is the essential difference between them. That this property is also different from sensibility, with which he was accused by Whytt of having confounded it, is sufficiently proved by its existence after death or extirpation: a heart will sometimes contract for hours while lying on a table, or suspended by a string. That it is something independent of the soul or sensibility, is therefore manifest: you cannot cut the soul into aliquot parts, and scatter it in different directions. Irritability differs in its seat from sensibility: some parts which are sensible are not irritable;

* Ritter, a German physiologist, has supposed, that a muscle not irritable by 100 pair of galvanic plates, may be still made to contract by 200; if exhausted to 1000, it would respond to 2000; and if it would show no sign of irritability to the stimulus of 1,000,000, it would certainly do so by the application of 2,000,000.—*Ed. Med. and Surg. Journal.*

the nerves and brain, which are sensible, cannot be made to show the slightest irritability; the heart, the most irritable of all the organs, is so far devoid of feeling, that sensibility has been denied to it by some writers. Irritability is more widely diffused throughout all nature, than sensibility: some plants possess it: polypi, and many orders of beings, which are destitute of brain and nerve, are in the highest degree irritable. You can destroy the irritability of a part, without much affecting its sensibility. Cut or tie the nerve of any muscle, it no longer feels, but it contracts. Take it out of the body entirely—can it still feel? but it can shorten itself when touched by any foreign body. Apply caustic vapours to a muscle, its irritability is destroyed, but it gives proofs of the most exquisite sensibility. Weak bodies feel more than strong ones. The ratio of contractile power is as the magnitude of the nerves going to a part; that of the sentient power, is as the number of fibrils exposed to the irritation. The degree of contraction produced is not proportioned to the acrimony of the stimulus: the heart's action is more readily excited by inflation with warm air, than by strong acids. Therefore the insensible is moved, and the moveable feels, and perception ought accordingly to be distinguished from contractile power. Hence his famous inference, that there exists in muscles, and in them only, a peculiar force, which gives them their character, is a part of their constitution, underived and inherent—VIS INSITA, commonly called irritability.

By means of this power it is, that the involuntary muscles exercise with so much constancy their vital functions. It occasions the heart to contract on the blood which is thrown into it, and through sleeping or waking, in all the various conditions of a long life, to exercise with so much precision its wonderful rhythm, while the soul is absorbed in busy thoughts, buried in the profoundest sleep, or struggling for a fitful activity under the burthen of a congested brain.

The vis insita of the stomach, intestines, diaphragm, small vessels, &c. upholds their indispensable operations beyond the reach of the caprice of human will; while the vis insita of the voluntary muscles, when stimulated or excited into action by the irradiations derived from the brain through their appropriate nerves, serves to establish and preserve our relations with surrounding objects. The inherent force therefore is possessed by all the

muscles, both voluntary and involuntary. The former have received the power of being excited through the nerves and brain; while the latter have received no such power. Hence the fourth sort of force would have been simply vis insita in an involuntary muscle, but is vis nervosa in one subservient to the will. They both depend on the same principle; but the latter is connected by nerves of volition with the brain, and consequently there is need for a discrimination.

Bichat divides the vis insita, which he denominates contractility, into two kinds, to wit: animal contractility, and organic contractility. The former corresponds to the vis nervosa, and the latter to the inherent force; but Bichat further divides the organic contractility into sensible and insensible; yet acknowledges that they differ only in phenomena, or what means the same thing, in degree.

Let us now make a statement of the several powers recognized by Haller, similar to that which Bichat has made; and then a comparison can be drawn between these two celebrated writers, which will show very fairly how they both thought concerning them.

Haller would say, that a muscle may contract, 1. by its vis nervosa, or voluntary force.

2. By means of its vis insita, when its nerves have been cut or tied.

3. By its vis mortua, if the muscle still retains its moisture, after death; and

4. By its vis elastica, or universa, if the organs have become dry.

Bichat cites the example of a muscle in which all the kinds of contractility may be evinced. This muscle may enter into action or be moved,

1. By the medium of the nerves and brain, or by volition; and this is an example of animal contractility, corresponding exactly to Haller's 4th sort, or vis nervosa.

2. By a mechanical or chemical irritation, which occasions a contraction analogous to that of the heart and other involuntary muscles. It is the sensible organic contractility, corresponding to Haller's vis insita, or irritability.

3. It moves by the afflux of blood, bringing nutritious mat-

ter, which occasions a motion in every fibre and molecule; a motion necessary for nutrition as well as for secretion and absorption. It is the insensible organic contractility, or tonicity; and we are somewhat at a loss to state what would have been the opinion of HALLER on this subject; but are disposed to think that he would have arranged this kind of force under his third head, or vis insita; for he has not denied to the small vessels a vital contractile power, although his opinion was by no means firmly settled respecting it. BICHAT himself can only refer his insensible organic contraction to those parts of the muscle—those vessels of the muscle, which are concerned in its nutrition, secretion and absorption; and since he admits this insensible contractility to differ only in degree from the sensible kind, which is the Hallerian irritability, we conclude that the only difference between these celebrated men is a nomenclatural one.

4. A muscle contracts when its belly is divided, giving an example of contractility for want of extension or contractility of tissue; a movement depending solely on structure, not at all on vitality. It is the vis mortua of HALLER.

5. From crispation—the vis elastica.

Upon a review of the several forces which have been mentioned in the preceding pages, it results, that if they comprise all the forces which exert any influence on the mere solids, as relates to their extension or contraction, then there can exist no vital *extensibility*, as opposed to the idea of vital contractility in the movements of living bodies.

Some persons, in reply to this inference, ask the question, why may there not be an active repulsion as well as an active condensation or attraction among the particles of the muscular fibre; but such a question proves nothing, nor does it throw any difficulty in the way of an argument against the existence of a vital repulsion or extension, by means of which a long muscle can be elongated, or a hollow muscle distended. The most that can be contended for is, that there exists a power of relaxation; which is far, however, from being capable of *protracting* a muscle, whose elongation never could be effected except by means of some extrinsic antagonist force. That the heart is capable of distending itself, seems to us a position impossible, with such as have taken

the trouble to examine for themselves the movements of this organ in dying or recently dead animals.

The state in which any muscle, in a healthy condition, is placed, after a contractile effort, is necessarily one of relaxation.

Haller has shown that even the involuntary muscles act by alternations of this sort; and if the contractile effort of an involuntary muscle, as of the intestine for example, become ever morbidly increased, there results an interruption of the function of the bowel. Thus, in the protracted state of bilious fever, how often do we find our patients suffering severely from the loss of contractile power in one part of the alimentary canal, while that of another is morbidly increased. In such cases I have found the great arch of the colon excessively distended, while its sigmoid flexure has been contracted to the size of a cord. In the state of health then, there is always to be observed an alternation of relaxation or repose, and action or contraction. The flexor muscles of the leg contribute nothing to the extension of the limb, nor can it be pretended that the extensors contribute to its flexion. The venous blood brought to the heart is propelled with sufficient force to distend the relaxed and now exhausted right auricle; but the auricle contracts on a relaxed ventricle, which, during the interval of relaxation, has acquired enough of contractile power to be irritated by the presence of blood, or the distension occasioned by its presence. To conceive of it as actively dilating itself, and sucking in the blood as into an exhausted receiver, is a notion so absurd that we can not reconcile it in any manner to ourselves, that it should be held by many persons.

That power by which an artery is reduced to its smallest calibre, acts incessantly. Every body now-a-days knows, that the pulse depends on the contraction of the heart, that the exposed artery discovers no lateral motion of systole or diastole, but only a longitudinal one of *protraction*, derived from the impulse impressed on the continuous column of blood at the origin of the aorta. Every artery or capillary, according to its dose of vital power for the time being, has the power of resisting laterally, more or less, the impulse of the heart on its contained column; and hence the small wiry pulse of one stage of disease which may be followed in another stage by a full bounding one. These variations depend only on the resisting power of the vessel or ves-

sels which exhibit them; they prove more or less of contractile power, but they give no proof of an active dilatation.

The vessels in the web of a frog, as we have frequently observed them with a powerful microscope, will contract when touched with spirits of turpentine; so that where three or four globules could move abreast, only two, or perhaps one, will be able to pass after the application of the spirits. This is irritability or vis insita, excited by an irritant; but in accordance with the universal law of the inherent force, this contraction must be followed by relaxation, and the tube which had become so contracted as to pass only one or two globules along its cavity, yields gradually to the impelling forces *a tergo*, so that three, four, or even six may now be seen flowing in it abreast. Take from the cutaneous vessels by a cup, the *mechanical* support of 15 pounds to every superficial inch, and they no longer resist the impulse of the force behind; they become congested, and finally inflamed. The analogy is complete—the diminution of vis insita, or the diminution of mechanical support, yield the same results.

Pour boiling water, or apply a hot iron on the skin. The first effect is to render the part as white and bloodless as the cornea; but when the vis insita excited by the stimulus, is exhausted, the colour returns, and inflammation is soon formed; simply because the dose of vital power in the part has been exhausted in the effort occasioned by the irritant; but when, under these circumstances, you apply Kentish's ointment to the burned part, you, by means of a renewed irritation of a milder kind, gradually effect the disgorgement of the inflamed vessels, by restoring their contractile efforts; and hence, too, the sound philosophy of that excellent practice.

Upon a retrospect of the several forces whose characters have been explained by HALLER and BICHAT, it is evident that they all tend, within a certain limit, to the condensation of the parts or subjects of them: that is to say,

The vis mortua will always act in the body by condensing its subject, when its cause of extension is removed.

The vis insita, or irritable force, will always contract or shorten the tissue or fibre which owns it, whenever an irritation is applied thereto.

The vis nervosa, which depends on the irradiation of the will,

can do no more than increase the contraction of any voluntary muscle. It can never diminish, or prevent, the operation of the inherent force of such muscle; when the will ceases to act, the action of the muscle ceases.

If all these be true, what do we mean by the word irritation? Is it answered, a provocative to contraction, or an exaltation of sensibility in any part? But the eternal law of the vital actions is, that they all tend to condense the tissues. How then is the old proposition, that, ubi irritatio ibi fluxus, to be defended or explained? How can fluids flow into a part, whose vis insita, acted on by an irritant, hath forced the particles thereof to approach each other, to be more dense and of less capacity for the reception of these fluids?

It cannot be as a first result, but only as a secondary result. It is easier to give examples of irritation, than to explain or define what it is. Cold is a powerful irritant of the superficial vessels. The application of cold to an extremity, may be so regulated as to diminish evidently the size of it. The fingers, when under the influence of cold, are smaller than when they are warm. This irritation may so far contract the irritable vessels of a finger, as to prevent a sufficient quantity of blood to pass through them to disengage animal heat, and they actually freeze; and so complete is the exhaustion of their dose of vital power by the irritation of cold, that, if suddenly thawed, they cannot resist the impulse of blood into their now pervious tubes; all their resisting power is annihilated, except that of their tissue, and the blood produces a disorganizing or gangrenous degree of inflammation.

Heat is a powerful irritant; it exhausts the contractile power very rapidly, and the enlargement of vessels exposed to it consequently takes place very soon; but cold requires a longer time to effect the exhaustion of contractile power, unless indeed it be intense; as in the case of frozen mercury, the effects of which are not to be distinguished from those of heated iron.

The application of the doctrine of irritation, *ubi irritatio ibi fluxus*, by the predominant French school, is attended with some disadvantages, which will hinder the progress of the physiological doctrine, among those who will carefully weigh and estimate the several kinds of forces of which we have so often spoken.

M. Broussais saw, through one of his friends' microscopes, the

tremulous and confused movement of the red globules in a frog's web, occasioned by the application of a stimulus to it; and he declared, in one part of his physiology, that the first effect of a stimulus, or an irritation, is to diminish the capacity of the vessels of the part, and that when this contraction becomes permanent, it *repels*, instead of attracting the blood into them. This proposition is so consistent with reason and sound philosophy, that we hailed it as one of the truest and most fortunate results of HALLER's labours; for to him we look through all his followers. What was our surprise, however, at finding, in a subsequent page, a note denying and recalling the statement which gave us so much pleasure, and this too without giving one satisfactory reason therefor. If M. B. had looked longer at the web, and applied for a longer space the stimulant of which he speaks, he would have seen the lines of vessels growing paler and paler, and smaller and smaller, until the red globules would have become totally excluded from the smaller tubes. The tremulous movement does occur in some cases, as we have witnessed; but it ceases, and the contractions of every part under the field of vision soon become uniform and decided.

Blood flows wherever irritation calls it, according to M. BROUSSAIS. Thus, in an intermittent fever, the irritation of the primæ viæ becomes sometimes inflammation, and the blood from the most remote part of the body rushes towards this focus. Hence all the phenomena of the cold stage.

How hard to be accepted is this doctrine to one who knows, that the blood, and all the fluids, flow qua data porta, and yet knows that the effect of irritation is to repel the fluids, and not invite them. How much more consonant to experience, to observation, and to sound analogies, is the belief, that the increased contractile phenomena of the superficial or cutaneous capillaries, are the results of some change, some augmentation, effected in the vis insita of these delicate tubes, than that they should be attributed to a kind of entity called irritation, throned in the primæ viæ, and calling the globules by a law which can never exist, a law of vital erection, of active extension, of vital extensibility, which never did effect, nor never can effect, one single phenomenon in any living creature—no not in the iris, or the nipple, or the corpora cavernosa penis!

We pretend not to deny that the phenomena of circulation are augmented in an organ which has suffered irritation, and whose vessels, exhausted of some portion of their contractile force, have again become pervious for the largest column of blood they are capable of passing through their calibers; but to call this by the name of increased action is to mislead the pathologist, is to establish an unsound therapeutics, and to prevent the clear and positive knowledge of the morbid phenomena from exerting its proper influence.

Irritation is not necessarily followed by inflammation; simple engorgement, or congestion, or increased flow of fluids, in any part, may result from irritations applied to them, according as the existing condition of the vis insita may be more or less exactly just.

The contraction of the cutaneous vessels and the interruption of the perspiration, may, in one individual, be only followed by a gently augmented circulation through these vessels, as after a cold bath, while in another an extensive erysipelas may succeed, followed by gangrene and mortification. In the one case the vital power of the part is not so soon or so much exhausted, and the consequent diminution of resistance is not so great; the new efforts of contraction are earlier commenced, and the disgorgement or resolution is easily effected. While in the other case, the loss of contractile or inherent force is more entire, and the subsequent resistance inefficacious, without renewal of the contractile effort, or restoration of inherent force.

Congestions of a general character may exist in any order of vessels; but febrile congestions probably have their seat in the internal veins, and partially also in the deep seated capillaries. Upon what principle can such a condition depend? If it results from increased efforts of distant vessels of a similar or different order, we can reasonably explain the effects of the remedies we apply. Thus, in such cases we apply sinapisms and blisters and rubefacients to the surface, which, by exhausting the contracted vessels subjected to their influence, of some portion of their morbid contractility, permit the internal vessels gradually to repel the fluids by which they are oppressed, and remove the congestion. Such we conceive to be legitimate inferences from the enumeration of motive powers made by Haller, in his essay De Partibus Humani Corporis Sensilibus et Irritabilibus, and in his Physiology.

Such persons as will candidly examine the proofs, which have been for the last seventy years before the profession, of the existence of the several forces enumerated, must come, like us, to the conclusion that to De Haller we are mainly indebted for the present advance and the prospective excellence of the science of medicine; which, without the development of a physiological pathology, would have ever remained a labyrinth of doubts and conjectures, instead of becoming what it hath almost become, one of the exact sciences.

We will close this article with some extracts from the Physiologia; and take our leave with the expression of our earnest wish, that to the physicians of the United States, this work may become, at some very early period, a familiar text book, which shall be found in the library of every American practitioner. After remarking that Glisson gave the name of irritability, &c. &c. he proceeds:

"I separated this irritability from the vis mortua, the vis nervosa, and the dominion of the soul. I showed that the heart's motion and the contractile movements of the intestines depend solely on this cause. I reduced its domain down to the limits of the muscular fibre." "I have shown it to be always present, and to be often exerted without the intervention of any cognizable stimulus; and that it is capable always of being roused from its state of repose by the application of a stimulus. I made the distinction between the stimulus which may be less, and the movement arising from it, which may be greater. The result of my labours is, that the old term irritability is every where repeated in conjunction with my name. It is acknowledged as a new invention in Germany, by men of the highest rank in science. I however make no boast on this account; and am even willing that the labours of others should be preferred to mine, freely acknowledging how far I am distant from the full light of truth. Some persons prefer the denomination of vital force; which I do not approve, because irritability sometimes endures longer than life. I prefer to call it vis insita or vis propria musculi."—Vol. iv. p. 463.

We have before mentioned that several editions of the Elementa Physiologiæ have been published, all equally good; but we omitted to mention the Auctuarium ad Halleri Elementa Physiologiæ; fasc. iv. Laus. 1782, 4.

In 1777, there appeared at Berne, the eight first volumes of a new and improved edition of the great work, under the title of Partium Corporis Humani Fabrica; but as it was never finished, sixteen volumes having been proposed to be published; it was not much esteemed. See Brunet's Manuel du Libraire

BIOGRAPHICAL NOTICE.

Article X.—*Memoir of Dr.* Samuel Powel Griffitts. By Governeur Emerson, M. D.

Whilst the inhabitants of our new country, under auspices far more happy than those with which it was the lot of our ancestors to be favoured, are now rapidly throwing aside the influence of the old world, and assuming characteristics more suitable to their improved institutions, it is an object of peculiar importance to hold up as models the lives of such of our countrymen as have been distinguished by extraordinary traits of virtue. In the following biographical notice, it is intended to give an honest account of one, who, though not distinguished by those brilliant achievements which dazzle the eyes of the world, endeared himself to his fellow-citizens by his active benevolence and uncommon usefulness.

Dr. Samuel Powel Griffitts, born in Philadelphia on the 21st day of July, 1759, was the third and last child of William Griffitts and Abigail Powel. His parents were members of the religious society of Friends; the tenets of which sect he adopted, and so steadfastly adhered to, as to afford a happy illustration of their influence upon the human character.

The classical education by which he was so well qualified for the study of a liberal profession, he received for the most part in the College of Philadelphia; an institution which, from the changes effected by the revolution, has been subsequently supplanted by the University. He possessed an accurate knowledge of the Greek and Latin languages, and such a mastery of the French as to enable him to speak it with the greatest fluency and correctness.

From the benevolence which predominated in his character, it is highly probable that, in the choice of a profession, he fixed upon the medical as applying most immediately to the relief of human suffering. He studied under the late Dr. Adam Kuhn, professor of materia medica and botany in the College of Medicine, then the only school in America where the science was taught by pub-

lic lectures. The intimate friendship which commenced at this time and ever afterwards subsisted between him and his preceptor, may be adduced as an infallible evidence not only of his early merits, but of his subsequent good conduct.*

It was during the period of his professional studies that the disastrous battle of Germantown was fought. Restrained by the strictest precepts of his religion from the performance of military duties, humanity led him to commiserate the sufferings of the wounded, and to apply his efforts towards their relief. It is well known that on this event a coincidence of feelings and circumstances led the late Professor WISTAR, then also a youth, to contribute his assistance for the same benevolent purpose, and, it has been said, ultimately determined him to make choice of the profession of medicine.

As a diploma granted on this side of the Atlantic, was not at that time regarded as a sufficient distinction or qualification by those who aimed at the highest honours of the profession, it was more common than at present for graduates to visit the schools of Europe. For the purpose, therefore, of reaping all the benefits to be derived from abroad, he crossed the Atlantic in the year 1781.

Proceeding first to Paris, he remained there some time in attendance upon the lectures and the practice of the hospitals. But the metropolis of France could not then boast of that supremacy in the various departments of medicine, which is now justly conceded to her; and the school of Montpellier still supported a pre-eminence so early acquired and so long maintained. He therefore repaired in the fall of 1782, to this southern seminary; and having attended a course of its lectures, devoted a portion of the ensuing spring to a tour through that interesting section of Europe.

Returning to Paris by a different route, he soon after directed his steps to England, and reached London in June, 1783. Here he availed himself of all the opportunities for collecting information which were offered, until the following autumn, when he re-

* For an interesting and faithful biographical notice of the late Dr. KUHN, written by Dr. GRIFFITTS, see the Eclectic Repertory, vol. viii.

paired to Edinburgh, which was then, as it is now, the chief seat of medical science in Great Britain. The eminent advantages held out by this school may be estimated from the names of its professors, the several chairs being then filled by CULLEN, MONRO, GREGORY, BLACK, and HAMILTON.

In the spring of 1784 he returned to London, soon after which he embarked at Portsmouth for his native country, and arrived in Philadelphia early in the fall, after an absence of about three years.

With the superior qualifications which he now possessed, he commenced practice in his native city; where he soon displayed strong proofs of the maturity of his talents; and to these added a striking evidence of the natural benevolence of his disposition, by his successful exertions in establishing the PHILADELPHIA DISPENSARY.

The chief design of this charity, was to afford medical relief to such of the poor, whose former circumstances and habits of independence, would not permit them to expose themselves as patients in a public hospital, when afflicted by diseases. It was the first institution of its kind established in America, and was founded early in the year 1786, without any other patronage or support than the voluntary contributions of many excellent citizens, and the gratuitous attendance of humane physicians. That Dr. GRIFFITTS was the first person who actively engaged in the establishment of a Dispensary in Philadelphia, rests upon the most respectable testimony. But the credit of having originally proposed the plan, he has very ingenuously ascribed to another, in a short manuscript written by him, and left among his papers. This record states, that "in the spring of 1785, Dr. HENRY MOYES, who was then in Philadelphia giving a course of lectures upon Natural Philosophy, proposed to some persons of his acquaintance there, the instituting a public dispensary for the medical relief of the poor, much on the same plan as those of London and other large cities of Great Britain. The Doctor drew up the plan thereof, assisted by S. POWEL;* but on account of his short stay in Philadelphia, delayed making any further progress in the business, except talking of it amongst his friends, and desiring me to keep

* The uncle of Dr. GRIFFITTS.

it in mind, and to look out for a proper house." He further states, that on the return of the Doctor to the city, the subject was again revived; and after several conversations between Dr. Moyes, S. Powel, Drs. Rush, Hall, Morris, and himself, a plan was agreed upon by them, and the institution organized. The first meeting of the managers and physicians was held at the City Tavern, on the 10th day of February, 1786; when it was resolved on as the first step, that the managers and physicians should collect subscriptions; in doing which, several of them succeeded so well, that at the next meeting, on the 24th of the same month, they had obtained 320 subscribers.

It deserves record as a remarkable fact, that, during its primitive obscurity in Strawberry street, and its subsequent more eligible location in Fifth street, he was, with very few exceptions, a daily visiter of the Dispensary for more than forty years; a circumstance in itself sufficient to account for the prosperity of the institution, and the uncommon regularity with which its affairs have been managed. In addition to his duties as manager, he discharged the laborious office of physician to that institution for seven years. Satisfied when he saw the establishment ably fulfilling the objects for which it was instituted, he seemed anxious to shun notoriety, and every thing like public commendation. His great ambition was to effect the most good with the least show. The beautiful sentiment applied by Sallust to Cato—*esse, quam videri, bonus malebat*—happily illustrates the christian spirit by which he was always actuated.

In the management of the Dispensary, he was peculiarly fortunate in being associated with men eminent for their endeavours to promote the welfare of society. These, in often yielding to a colleague the duties that they themselves would willingly have performed, consulted the prosperity of the institution which they knew would be best secured by his faithful superintendence. Their sense of his services is expressed in the following Resolution, offered by the venerable President Bishop White; who, at their request, transmitted a copy of it to his family:

"Resolved, that the managers will, at their next meeting, proceed to the election of a Secretary, in the room of Dr. Griffitts, lately deceased; the loss of whom they deeply regret, and of

whose faithful and important services during more than forty years, they will retain a grateful remembrance."

In the year 1816, thirty years after the institution of the first Dispensary in Philadelphia, the extended limits and multiplied population of the city, and consequent increased number of the poor, rendered it necessary to establish two others, one for Southwark and one for the Northern Liberties. In the foundation and support of these additional charities, he took an interest and an active part, not less perhaps than he displayed in the origin of the first; so that he may be fairly considered as the father of the Dispensaries of his native city.

In the same year in which he was so actively engaged in establishing the Dispensary, he joined the Humane Society, instituted for the purpose of rendering timely assistance in cases of suspended animation, and encouraging efforts to restore life. This institution always received a large portion of his attention. He was likewise chosen a member of the Philosophical Society, of which Dr. FRANKLIN was then President. In the following year the College of Physicians of Philadelphia was founded, he being one of its original members.

The particular interest which he entertained for the College of Physicians, was evinced by a constant attendance of its meetings, from its first organization until his death; during which time he rendered it the most efficient services, both as a zealous member and faithful officer. In 1817 he was chosen its Vice President; an honour which he retained until his death.

Strongly impressed with the belief, that great advantages would result to the medical profession in this country from the adoption of a National Pharmacopœia, he entered warmly into the project when it was brought forward. For this object a convention of the middle states met on the 1st of June, 1819, in the chamber of the College of Physicians of Philadelphia; and closed its session on the 4th inst., after having made what was deemed a proper selection of the several articles and preparations, and appointed delegates to represent the middle district of the United States in a general convention, for the formation of a Pharmacopœia, to be held at Washington, on the 1st of January, 1820.* The Col-

* The convention of the middle states was composed of delegates from

lege of Physicians having appointed him a member of a committee to prepare an Essay of a Pharmacopœia, to be laid before the general convention, this arduous task was chiefly performed by him; and had the work been published in this city, under his superintendence, it would no doubt have come from the press without the necessity of that extensive list of errata which was subsequently drawn out by his own hand.

In the pursuit of knowledge, he never permitted himself to be borne away by those ingenious speculations and sophistical arguments, which, in scientific works and associations, are so often advanced and plausibly supported. Endowed with a clear perception and sound judgment, his mind was always directed to subjects of practical utility. Upon these, and especially upon such as were connected with his profession, he was always capable of contributing important information. He was a diligent reader, and never allowed himself to be left in the rear of the march of improvement. Unlike those whose learned pursuits are for the most part limited by mere selfish gratification, or the pride of possession, his main object was to attain that which might be applied to some useful or humane intention.

In the great pestilence which, in 1793, desolated Philadelphia, he remained in the city, actively engaged in extending professional aid to the sick, except when labouring himself under the disease. Nor was it alone in this season of calamity that he remained firmly at his post, and performed the most laborious and hazardous services. In the memorable epidemics of 1797, '98, '99, 1802, and 1805, he stood in the midst of the desolation, and regardless of personal danger, was solely intent upon extending relief to his suffering fellow-citizens, who, wasted by pestilence in darkness and at noonday, were falling on every side. In 1798, he united his own exertions with those of the late Dr. Rush, in preparing and publishing accurate directions for the prevention and

the following societies, viz:—The College of Physicians of Philadelphia, the Medical Society of the State of New York, the College of Physicians and Surgeons of the city of New York, the College of Physicians and Surgeons of the western district o New York, the New Jersey Medical Society, the Medical and Chirurgical Faculty of Maryland, the Medical Society of Delaware, and the Medical Society of the District of Columbia.

treatment of the prevailing fever; which, under the sanction of their names, they affectionately recommended to those who were unable to procure the regular advice and attendance of physicians. Surely nothing can more strongly recommend a physician to grateful remembrance than such meritorious acts and magnanimous devotion; and when we take into consideration the nature of the calamity, and all its distressing accompaniments, we can readily appreciate that affectionate ardour of the Athenians, which, for services rendered by HIPPOCRATES, in one of their plagues, led them to bestow upon him a golden crown, and to honour his memory with divine festivals.

The distress which, in the year 1793, fell upon the former proprietors of St. Domingo, in consequence of the successful insurrection in that island, furnished an additional opportunity for the display of his benevolence. Most of the French who were driven by this event to seek refuge on our shores, had on their arrival little else to boast of than their lives. Their strong claims for assistance were liberally answered in Philadelphia, where in a short time 12,000 dollars were collected for their relief. On this occasion Dr. GRIFFITTS made himself very active, both in procuring the means and appropriating them to the necessities of the sufferers. He was particularly qualified for this last office, by the facility he possessed of making himself intimately acquainted with their situation and circumstances. Besides the money collected by himself, he was entrusted with the distribution of large sums raised by public or individual bounty. The part which he bore in alleviating the sufferings of the unfortunate French emigrants, both in 1793 and several subsequent years, left an impression which I have often heard them express with tokens of the most heartfelt gratitude. A circumstance which we may here introduce, is calculated to throw a very strong light upon his character. It might reasonably be supposed that his constant intercourse for several years with the French refugees, the forlorn condition to which they were reduced, and the distressing and sanguinary details they had to relate, would be directly calculated to inspire a hatred of the successful conspirators which no philanthropy could overcome. Such, however, was not the result. Deeply as he sympathized with the vanquished, he continued to the day of his death to evince a strong solicitude for the general

welfare of the present masters of Hayti; forwarding to them gratuitously, by every favourable opportunity, supplies of fresh vaccine virus, without which that island would be almost deprived by the nature of its climate, from sharing in the advantages of JENNER's discovery.

In the year 1790, he joined the "Pennsylvania Society for promoting the abolition of slavery, the relief of free negroes unlawfully held in bondage, and improving the condition of the African race;" a charter for which had been obtained the year previous. The objects embraced by this association, he always had very much at heart. The community of feeling which subsisted, on these subjects, between him and GREGOIRE, bishop of Blois, the famous champion for the abolition of negro slavery in France, led to a long continued and intimate correspondence between them.

Dr. GRIFFITTS was always a strenuous advocate for the salutary modifications, which for many years have been gradually finding their way into the penal code of his native state, and felt the most lively interest for the success of the humane system of punishment, which has been finally adopted, and is now about to be applied on a scale well calculated to test its efficacy.

In the year 1792, he was chosen professor of materia medica in the University of Pennsylvania; and during the four years for which he filled this chair, his lectures evinced great industry in the acquisition of useful materials, method and perspicuity in their arrangement, and zeal for the advancement of his class in solid information. But the situation of a public lecturer was not altogether congenial to his feelings; which were most gratified by an active discharge of the less conspicuous duties of private life. Perhaps too, the disinclination which he always manifested to hold any place of emolument, may have exercised some influence in producing his resignation of a chair, which was every year becoming more profitable, and even at that period conferred one of the highest honours within the reach of his profession.

Dr. GRIFFITTS was one of the first to appreciate the importance of vaccination, and to introduce it into this city; and in no way did he display more zeal and industry than in advocating and spreading, by every means in his power, the blessings flowing from this inestimable discovery. Besides what he accomplished

in his individual capacity, he was an original member and active promoter of the Vaccine Society, instituted in the year 1809, by a number of benevolent citizens, who formed themselves into committees, and sought out the objects of their Association among the poor and obscure inhabitants of the City, Southwark and the Northern Liberties, persuading them to submit to vaccination, which was performed at their own dwellings, by physicians appointed by the Society.*

Of the various afflictions entailed upon mankind, that of mental derangement makes the strongest appeal to humanity for sympathy and assistance. We might therefore reasonably expect to find Dr. GRIFFITTS actively engaged in some plan for the relief of individuals and families suffering from the effects of this dispensation. Accordingly, when, in the year 1811, proposals were made to the Philadelphia yearly meeting of the religious society of Friends, to make provision for such of their members as were deprived of their reason, he eagerly embarked in a subject which had already occupied his mind for many years. The information he had previously acquired, the zeal by which he was actuated, and the persevering disposition for which he was so remarkable, qualified him peculiarly for rendering the most essential aid towards an establishment of the nature proposed. The highest expectations of him were fully realized. It was agreed upon by the society, that an establishment should be formed, and placed under the direction of such members of the Philadelphia yearly meeting as might become contributors. The original plan was drawn up by him, and he took a most active part in all the arduous duties connected with the erection of the extensive buildings, and the necessary arrangements for the reception of inmates. The site selected was a retired situation, five miles from Philadelphia, and one from the village of Frankford. As it was contem-

* The important results arising from this association, in checking the mortality and lessening the evils of the small pox, is strikingly demonstrated by the annual official reports of the Board of Health; from which it appears, that there died of this loathsome disease, in the city of Philadelphia, Northern Liberties and Southwark,

In 1807	32 persons,	In 1810	140
1808	145	1811	117
1809	101	1812	NONE.

plated that this institution should embrace many improvements upon the usual methods of treating the insane, much previous deliberation was called for by those who had charge of its foundation. This admirable institution, such as it was formed by the joint labours of himself and his valuable colleagues, amply attests the judgment and wisdom which guided its projectors and managers.* Let those who wish to view the pleasing but melancholy spectacle of the insane divested of their long known accompaniments, fetters, manacles, and chains, and treated in a manner so lenient and soothing that necessary restraint is almost concealed by the air of retirement, serenity, and comfort which surrounds them, repair to the Friends' Asylum near Frankford.

In stature Dr. Griffitts was about the middle size; and although his constitution was by no means robust, it was nevertheless capable of supporting considerable fatigue. As the best proof of this, we may mention, that although his practice was very extensive, yet he always visited his patients on foot. Such indeed was his predilection for walking, that he never could be induced either by the entreaties of his friends, the increased extent of the city, or the advance of age, to adopt the usual method of riding.

He was extremely plain, abstemious, and regular in his mode of living; which, with the free exercise he took in attending to his patients, no doubt contributed greatly to the preservation of his health. His dress was such as became an elder of the religious society to which he belonged; and conformed with the simplicity and dignity of his manners and character. Free from even a shade of affectation or ostentation, his deportment was distinguished for its ease and courtesy.

The situation of a physician, who, in the performance of his duties, is liable to be called upon at all hours of the day, does not readily admit of that accurate distribution of time which is allowed by many other avocations. Upon this account, the extreme regularity acquired and maintained by Dr. Griffitts, in all his habits and pursuits, forms a more distinguished trait in his charac-

* A detailed and highly interesting account of this institution, will be found in the Philadelphia Journal of Medical and Physical Sciences, for August, 1825.

fer. He was an early riser, and always began the day by reading a portion of the New Testament in Greek or Latin. Impressed with a deep sense of the paramount obligations of religion, he was seldom known to be absent from the meetings of worship or business of his society. The punctuality with which he visited the Dispensary, has been already remarked, and as an additional proof of the regularity of his habits, and a striking example of parental solicitude, we may mention, that it was his uniform custom to visit daily such of his children and grand-children as resided in the city. But it was in his professional engagements that his punctuality shone forth most conspicuously. Rarely indeed did it occur, that in keeping the time set for consultation, or other purposes, he was so long as five minutes from the hour appointed. This strict observance of such engagements, he regarded as one of the cardinal virtues of a medical practitioner, considering all violations of it as so many deviations from truth, productive of endless inconvenience. The example of his preceptor, whose conduct in this respect, during a practice of half a century, has perhaps never been surpassed, was well calculated to confirm him in the same habit.

In his consultations with other physicians, his conduct was ever open and ingenuous; whilst the thorough knowledge he possessed of the rules and etiquette prescribed by medical ethics, was strongly demonstrated by his scrupulous observance of them.

The practice of Dr. GRIFFITTS was distinguished by closeness of observation, clearness of judgment, and when the occasion required, prompt decision and efficient energy. To the well established principles of medicine, he adhered with great strictness; but was nevertheless always ready to adopt useful innovations, when these were in accordance with the dictates of sound reason, and attested by impartial experiments. His attentions to his patients were sedulous, evincing a strong interest in their welfare, and inspiring confidence of a happy result.

As a writer, Dr. GRIFFITTS had one formidable obstacle to contend with, and this was his reluctance to appear before the public. His communications, which were never made except when drawn forth by a sense of duty, possess an easy, plain, and concise style. Fidelity and perspicuity in narration were more his objects than grace or elegance of composition. He was one of the edi-

tors of that highly useful medical journal the Eclectic Repertory, a publication which reflects great credit upon the judgment and talents of those by whom it was conducted, and the suspension of which is a loss to the profession. Among the original papers it contains, are some valuable contributions by Dr. GRIFFITTS; in all of which he has strictly confined himself to a relation of facts, without advancing any theoretical remarks. They are very much condensed, and strongly impressed with that candour and good sense for which he was eminently distinguished.

In the first volume he has evinced the particular interest he felt in the success of vaccination, by giving some very useful observations on the best means of preserving and using the vaccine crust. In the third volume he introduces the subject of blistering as a remedy for preventing and arresting mortification. The sixth volume contains a paper upon the subject of re-infection in the yellow or ship fever of tropical climates; the non-occurrence of which he ably maintains. Among other evidences which he brings in support of his position, he states, that during the seven years of its appearance in Philadelphia, he did not meet with one instance of the same person's having the yellow fever a second time. He was a firm believer in the contagious nature of this disease, and a warm advocate for enforcing restrictions and precautionary measures, calculated to prevent its introduction from abroad. In the ninth volume he has recorded an instructive "Case of supposed aneurism of the right carotid artery;" which is intended as a salutary caution to his medical brethren. It affords a fine specimen of his candour.

In the year 1787, he married Mary Fishbourne, daughter of William Fishbourne, formerly a respectable merchant of Philadelphia. From this marriage six children with their mother yet survive.

The private worth and domestic virtues of Dr. GRIFFITTS will forever endear his memory to his family, and to all who knew him intimately. As a friend, he was kind, sincere, and obliging; as a husband, attentive and affectionate; as a father, fond and indulgent. His piety was founded upon unshaken faith in the doctrines and efficacy of the Christian dispensation, as inculcated in the precepts, and maintained in practice by the religious society of Friends.

Thus, by the purity of his life and the possession of religion, was he happily prepared for the final summons, which on the 12th of May, 1826, so suddenly called him away. For several days previously he felt rather more debility than usual, but continued to visit his patients, although he was unable to attend them all. Early on the morning of his death he complained of some unpleasant feelings about his chest, which he thought might be relieved by bleeding. He arose and began to dress himself. In the mean time, his wife became alarmed and sent for his friend Dr. PARRISH; who, although he attended immediately, found on his arrival the lifeless body of Dr. GRIFFITTS resting in an easy posture upon the bed. Having escaped the infirmities of age, he was thus removed in his 67th year, and, as if through a special interposition of Divine favour, exempted from the ordinary penalties of sickness and pain.

BIBLIOGRAPHICAL NOTICES.

ARTICLE XI.—*Observations upon the Autumnal Fevers of Savannah.* By W. C. DANIELL, M. D. Savannah, (Georgia,) 1826. 8vo. pp. 152.

IT was our intention to offer in the present number a careful review of this work; but we have been unavoidably compelled to substitute a mere notice, which will consist of extracts from it, arranged, however, in such order as to exhibit the principles and practice which it upholds. The advocates of the system of Dr. DANIELL are said to be numerous in the southern states; it therefore has a right to the respectful examination of his brethren, the more especially, as the claim is temperately and modestly preferred.

In the introduction to this work, the author remarks, "Although it be my fortune to entertain opinions which have the sanction of neither time nor authority, I cannot with any justice be reproached for convictions, which experience, as diligent and dispassionate as I could make it, has forced upon me. It is true I may overrate the importance of such opinions; if I do, it cannot be doubted that both reproof and rebuke await me."

Dr. DANIELL commenced his career as a practitioner at Savannah, in the year 1815; and has had, on several occasions, very ample opportunities to compare the most successful modes of treating the violent diseases which prevail in that climate. "About the latter end of August, and during September, (1817,) there was a very considerable abatement of disease. This arose from an absence of subjects; for towards the close of the latter month, several vessels arrived from Europe and the north. The seamen and passengers which they afforded, very soon became sickly, and with them the fever assumed a much more severe and rapid character. Their numbers were increased from day to day by new arrivals. Here the disease ran its course in two to five days. Evacuants even the mildest could not be borne. There was from the first, great debility. Blisters frequently failed to vesicate. Indeed nothing appeared even for an hour to arrest the disease. It soon became obvious that every attempt to salivate must be nugatory. It was at this time, that I became first impressed with the importance of the LOSS OF TONE IN THE SKIN; and of the necessity of the adoption of some means to restore it." Introduction, viii. After consulting his medical friends concerning the usual mode of treatment, without any fruitful result, he "resolved to abandon a practice which at least in my hands had achieved nothing, and I substituted an infusion of serpentaria with bark." This plan, though his success with it was "not satisfactory, was infinitely greater than

with the other remedies which I had previously used." x. In 1820, when Savannah was afflicted with a very fatal epidemic, Dr. D. had an opportunity of laying out a system of treatment, of which the above was only the inception. The work commences with observations on the topography of Savannah, containing some interesting remarks on the sanatory results of a change from wet to dry culture, in the flat or marsh land on the opposite shore of the river. For these we must refer to the book itself.

At p. 47, Dr. DANIELL, after a slight examination of some of the commonly supposed causes of fever, says, "It has appeared to me far more reasonable to suppose, that autumnal fevers are produced by qualities imparted by marsh miasma, to an atmosphere which, thus impressed, impairs the capillary action of the skin, and affects the equilibrium of the circulation; the destruction of which creates an effort in the internal capillaries now surcharged to relieve themselves, *which reaction constitutes fever*. The character of the fever, (other circumstances being equal,) and consequently the speedy production of the disease, depend essentially upon the force of the cause applied. In some instances, the destruction of the external capillary action is so complete and sudden, and the superficial blood so immediately thrown in upon the internal capillaries, that the system is capable of no reaction. In such cases the patient dies in what is called the cold stage," &c.

Our readers will perceive, from the short extract above, the nature of the author's opinion concerning the state of the blood vessels in the fevers he describes; we cannot here afford sufficient space to follow him in his observations on the blood vessel system.

At p. 77, commences an examination of the question "Is autumnal fever inflammatory?" and at p. 90, he says, "To me, it has appeared, that the tendency of our fevers, from their very first access, is to a state of collapse, not from indirect, but direct debility. If this tendency is resisted in the onset, we contend merely with the causes of debility in operation. If we wait until the collapse, and accelerate that by the use of evacuating medicines, we have afterwards to contend against these causes in their maturity, and with their effects greatly multiplied." And at p. 91, "In fine, there is not one unequivocal evidence of inflammation in any one stage of autumnal fever. It is a disease commencing in debility, throughout its progress displaying evidences the most positive of debility, and terminating by the direct extinction of vitality."

An inquiry "Upon salivation in autumnal fevers," commences at p. 94. On this head we can only in our notice, cite the following: "I have already alluded to the great quantities of mercury which were administered in the fever of 1820, in this place. Although it is believed no physician claimed to have saved a single individual from death that season by the production of salivation, it was administered the following season with equal freedom and apparent confidence by most of them in the same disease. I am gratified, however, to say, that since 1822 the mercurial treatment has gradually yielded to my own; which latter, although still condemned, has been to a considerable extent adopted generally. *Sinapisms*, *Bark* and *Serpentaria*, which in 1821, were treated with little deference, are now daily in the hands of all our physicians, when treating autumnal fevers," &c. p. 101.

The "Method of Treatment" commences at p. 103. It consists mainly in the use of sinapisms, capsicum, serpentaria, bark, and Fowler's arsenical solution.

In the application of sinapisms, Dr. D. designs to produce a decided inflammation of the skin, which shall be permanent, as distinguished from the short-lived rubefacient effect of these plasters. He requires, if possible,

that the inflammation should not terminate in vesication, which brings about results like those of the cantharis—vesication is an unfavourable circumstance. p. 105. "The sinapisms are habitually applied at the same time to the abdomen, forearms and legs; and are made to occupy as much of the surfaces of these parts as is convenient." 106. "When applied during the exacerbation of fever, or when the heat of the surface is above the healthy grade, (and occasionally at other times,) so soon as they fully produce inflammation upon the skin, there follow, almost invariably, free evacuations, from either the bowels, kidneys or skin, and always to the decided advantage of the patient." 107. "By the repeated application of the sinapism to the same part, the inflammation will be in a few days rendered complete; by which time, frequently, the patient is relieved from all danger, and nothing more is required than the continuance of the medicines for a short time, with proper nourishment," &c. 108.

Next to sinapisms, (in conjunction with which it is frequently directed,) Cayenne pepper exercises the most powerful influence in calming the irritated stomach." 118. It has repeatedly suppressed the black vomit, and in one case was followed by recovery, after this symptom; it removes the dryness of the tongue, checks determination to the brain, moistens the dry skin, and diminishes the cold clammy state of that surface. A table spoonful of pulv. capsici annui is infused in a pint of boiling water. The dose is a table spoonful repeated once in each hour, or *in extremis* oftener. 117—18.

Serpentaria Virginiana requires more caution in its administration than any of the articles used by Dr. DANIELL, in the autumnal fevers of Savannah. "Used without the aid of sinapisms, it frequently increases the disposition to delirium; and whenever that is present, it should be rejected." He also uses it in conjunction with the capsicum tea. 121.

Bark may be freely given, in pepper tea, or with infusion of serpentaria, when the skin has been successfully inflamed by the sinapisms. "I frequently give, in severe cases, as much as three or four ounces in 24 hours; where the disease is mild, less than half that quantity. I use it in every stage of the fever, whether of remission or exacerbation, with equal convenience. Once commenced, it is continued throughout the disease, in as large quantities as the stomach will receive; and it is mainly to this mode that I attribute the very general success which has attended the use of it in my hands." The sulphate of quinine has also been successfully employed by Dr. DANIELL. 121—22.

Such is the scanty analysis of Dr. DANIELL's work which we are able to offer to our readers in this journal.

It can hardly be necessary for us to remark here, that his principles in the management of autumnal fevers, are mainly to produce an increase of circulatory phenomena on the superfices of the body, by inflaming extensive portions of skin with mustard, and to fortify the debilitated system and urge the circulation to the surface at the same time, by infusion of red pepper, by serpentaria, and by bark. Those who, from the present novelty of this plan, are willing to examine into it more deeply, are commended to the book itself, which is in reach of any reader. We have some prospect of presenting to our readers in a future number, examples of cases treated on the plan above described, and must, for want of space, defer our observations until then. A few well registered cases, candidly relating every circumstance from the commencement to the close of the attack, would have enabled his readers to judge much more satisfactorily concerning the new method.

ARTICLE XII.—*A practical Treatise on Diabetes, with observations on the Tabes Diuretica, or Urinary Consumption, especially as it occurs in children, and on Urinary Fluxes in general. With an appendix of Dissections and Cases, illustrative of a successful mode of Treatment, and a postscript of practical directions by examining the urine in these diseases.* By ROBERT VENABLES, M. B., &c. London. pp. 214. 1825.

This is a very sensible work, in which the author has given proofs of a sound practical mind, and no trifling share of experience in the diseases of the urinary organs. He commences by stating that several cases of wasting in children presented themselves to him, in which he was unable to detect any serious or permanent derangement of function in the abdomen, lungs, head, &c., and in which the treatment founded upon the principles of correcting these functions, when deranged, was generally unsuccessful. Accident first led him to discover the real nature of the case. "Upon one occasion, after making inquiry into the state of the different functions, I was given to understand that each was regularly and healthily performed. The head was free from pain, and the functions of the brain regular; the respiration natural, the bowels free, and the secretions from them healthy. Nothing, as I was told, appeared remarkable in the urine; but it was, after some farther examination, stated, that it was discharged in very great abundance; but this was disregarded as unimportant, because the patient consumed a very inordinate quantity of fluid to satisfy the constant thirst with which the little sufferer was harassed." "I felt little difficulty in determining between cause and effect; nor had I any hesitation in referring those cases of evacuation, which I had previously considered as anomalous and unintelligible, to this genus." "On a minute morbid examination, I discovered diseased appearances in the kidneys sufficient to account for all the symptoms."

The next chapter of the work before us is occupied with the symptomatology of diabetes, as this latter appears in children and in adults. We cannot follow our author in this detail; as we take it for granted that the greater number of our readers are already acquainted with the symptoms of this disease. We have only room to recommend the utmost attention to be paid to the condition of the urinary discharge and organs; particularly in cases of children, and in all cases attended with some degree of obscurity in the diagnosis. On the subject of the morbid anatomy of diabetes, which occupies the following chapter, our author remarks, "The morbid anatomy of diabetes is properly confined to the kidneys and urinary organs. Diabetes never exists to any extent, without the kidneys presenting, on dissection, manifest changes. These changes vary from a trifling vascularity to severe organic derangement. Sometimes the kidneys are much inflamed, and present a florid vascular appearance; in other cases the venous system of these organs seems enlarged and turgid with blood."

Mr. VENABLES enumerates among the remote causes of diabetes, all agents which may become an unnatural stimulus to the kidneys; and of the immediate cause, he says, "Dissection has shown that this disease is always attended with some manifest change in the structure of one or both kidneys. Hence we may conclude that a mere functional change is hardly adequate to the production of the permanent disease." After this statement, we are prepared to follow him, though only *a little way*, into his views respecting the pathology of the disease. He combats the opinion of the late Dr. ROLLO, who, as some of our readers may recollect, supposed the cause of diabetes to exist primarily in the stomach, the kidney being the organ through which it manifested its deranged action. So far from admitting this view

of the nature of the disease, Mr. VENABLES is inclined to believe, "that diabetes more frequently arises from a peculiar excitement of the kidneys, originating in the direct application of stimuli to their substance. At first, the excitement is only occasional, and the effect subsides; but the repeated irritation of organs, we well know, brings on inflammatory action, and at last disorganization. It has been observed, in discussing the morbid anatomy of the kidneys in diabetes, that they generally exhibit morbid vascular appearances, and frequently considerable disorganization of their structure. The first effect of the irritation is merely an increase of their natural functions; and more urine is separated, than under their natural action would be effected. The qualities of the urine, too, are not affected; or at least not sensibly so, at first, nor until after the repeated application of the stimuli. But by repeated excitement, not only are their functions increased and sensibly perverted, as is indicated by coagulation of the urine, and its saccharine properties, but also their structure and organization become seriously affected." "All the other affections, as of the organs of sense, the head, chest, and abdominal viscera, seem to me to be secondary."

On the subject of the treatment, Mr. VENABLES remarks, that it should consist in reducing the inordinate action of the kidneys, diminishing their preternatural excitability, and endeavouring to correct the perverted functions by which a morbid urine is produced, and, after this is effected, to guard, if possible, against a relapse. These important objects are to be attained by avoiding the exciting causes, whatever they may be, and by direct efforts to remove the affection of the kidneys. From the view which the author takes of the nature of the disease, it will not appear astonishing that he should recommend venesection in its treatment—a remedy often used before him, but oftener neglected or entirely rejected by practitioners, from their extraordinary fear of debility. When it is impracticable or unadviseable to use the lancet, cups are recommended by him, and leeches by us. Blisters or caustic issues may also be used, but particularly after the abstraction of blood. The state of the bowels and skin should be paid attention to, and any suppressed or vitiated secretion corrected. Opiates are thought highly useful in this disease by Mr. V.; but he has generally found its value much enhanced by combination with an antimonial; as in this way it generally affected beneficially the skin and the bowels. After the disease, by these means, has been robbed of its inflammatory symptoms, astringents may then be administered, with a view of putting a stop to, or of lessening, the discharge. To effect this purpose, our author prefers the phosphate of iron; which, he says, "may be given as an astringent in doses of one or two grains, which may be gradually increased to a scruple or half a drachm, three or four times in the day. In children smaller doses should be given." "It may be observed, that after a continued use of any medicine, the dose must be gradually increased, or otherwise its effects will begin to diminish. Sometimes it is useful to suspend the use of the medicine for a short time, and then to recommence it again. In this way the susceptibility of the system is often revived, when it would not be safe to attempt the object by any other means."

This analysis of the present work is certainly very imperfect; and many interesting points, particularly relative to the pathology and treatment of the disease, are unavoidably excluded. For these, therefore, we refer to the work itself; which we hope to see republished by some of our enterprising booksellers; for though much of the doctrine it contains may easily be traced to other writers, particularly of the French modern school, we consider it, nevertheless, an interesting and valuable production.

ARTICLE XIII.—Report of the trial of an action, Charles Lowell vs. John Faxon and Micajah Hawks, for malpractice in the capacity of Physicians and Surgeons; at the Supreme Judicial Court of Maine, holden at Machias for the county of Washington, June term, 1824, before the Hon. Nathan Weston, &c. &c. Portland, 1825. 8vo. pp. 124.

A letter to the Hon. Isaac Parker, Chief Justice of the Supreme Court of the State of Massachusetts, containing Remarks on the Dislocation of the Hip Joint; occasioned by the Publication of a Trial which took place at Machias, in the State of Maine, June, 1824. By John C. Warren, M. D., Professor of Anatomy and Surgery in Harvard University, and Acting Surgeon in the Massachusetts General Hospital. Cambridge, 1826. 8vo. pp. 142.

We have purposely avoided noticing the former of these publications, until we could present the answer to the charges contained in it, against the learned and distinguished practitioner, so strongly and unnecessarily animadverted on by the defendant's council during the trial. We have not been disappointed in this answer: it is a cool dispassionate statement, and filled with excellent remarks on the injury which formed the basis of the prosecution. Before presenting an analysis of this transaction, we cannot abstain from noticing the illiberal spirit with which the defendants' attorney has endeavoured to invalidate the evidence of the author of the Letter, and that of his colleagues in the Massachusetts Hospital. That the arguments of the defence are ingenious and display much talent, must be allowed; and we are willing to admit that a lawyer is bound to make use of every honourable exertion to promote the success of a cause committed to him; but in this case he has overstepped those bounds which courtesy and a regard for the feelings of others prescribe to members of society. He is not content with heaping censure and contempt on the professional opinions of the witnesses: the institutions to which they are attached, nay, the very town in which they dwell, are involved in one wide sweeping denunciation.

We will endeavour to present, in as few words as possible, the history of the case, taken, in great measure, from the judge's charge.

It appears, that, on the seventh of November, 1821, the plaintiff, Charles Lowell, was riding a young and restive horse, which threw him and fell on him, his weight resting on the inside of Lowell's left thigh; in consequence of which his thigh was injured at the joint. Dr. FAXON, being near the spot, at Lubec, was immediately called: he had been the physician usually employed by the plaintiff's family; he attempted, and, as he thought, with success, to reduce the dislocation—the injury he said the patient had received; but not being confident of his skill, he acceded to the wish expressed by one of Lowell's friends, to send for Dr. HAWKS, which was accordingly done. Dr. HAWKS pronounced the injury to be a dislocation with fracture of the socket; and, finding the limb unreduced, proposed an operation, to which Dr. FAXON acceded. "In respect to the method of reduction employed on this occasion, there is nothing to show it was improper." "Dr. HAWKS pronounced the bone to be reduced; COFFIN (one of the bystanders) expressed the same opinion, and testifies plaintiff said it felt easy and natural." Other witnesses testify to the same point. "The knees were then bound together with a bandage, and the patient's situation explained to him by Dr. HAWKS. The patient remained in this state fifteen days. In five or six days after the operation, Dr. HAWKS was sent for, but did not come: on the fifteenth day he came and examined the patient, and explained that his other business had prevented his earlier attendance. On this visit, Lowell inquired the cause of the hollow upon the hip; which Dr.

HAWKS said was owing to the fracture, and that it was as well as the nature of the case would admit. Lowell kept his bed three days after this. In about ten days, Dr. HAWKS came again, and examined the limb very particularly. No difference in the length of the limb was observed at this visit. On the twenty-third of October, Dr. HAWKS came the fourth time; the patient inquired of the Doctor the reason of the lengthening of the limb; the Doctor paused, and observed that it did not look as if it were perfectly in its place." "Soon after this period, some dissatisfaction appears to have arisen in the plaintiff's mind; and he was induced to go to Boston, and had the resolution to submit to have the experiment of reduction tried upon his limb at the Massachusetts General Hospital. An examination of his case was then made by Drs. J. C. WARREN, TOWNSEND, SPOONER, WELSH, and MANN, with other physicians and surgeons; and it appears to have been the decided opinion of these gentlemen, that there was *then* a dislocation downward or backward, and four of the gentlemen said into the ischiatic notch. But it had existed so long that they would not undertake to reduce it without his consent; which he gave, and it was attempted, but unsuccessfully. Notwithstanding the failure of this experiment, however, those gentlemen persist in their original opinion; they further declare, that it was quite impossible that the bone should have been restored to its place, and have got out again, consistently with any of the circumstances suggested by the defendants. After recovering from the effects of the operation, the patient left the Hospital, and applied to two other surgeons; who concurred in the opinion of the dislocation existing, and by both of whom attempts were made to reduce the limb, but unsuccessfully. Not content with this, he applied to Dr. SMITH in June, 1822; who "made a critical examination of the plaintiff's case." The result of Dr. SMITH's inspection was, that in his opinion there was no dislocation: according to his judgment, it was originally an injury done to the socket of the thigh bone, accompanied with a derangement of the bones of the pelvis.

Shortly after this, Mr. L. instituted a suit against Drs. FAXON and HAWKS, for unskilfulness and negligence, by which the patient lost the use of the limb, &c.; laying the damages at 10,000 dollars.

On the trial, the jury were not able to agree, except in acquitting Dr. FAXON; they were discharged without taking further verdict; and finally the plaintiff suffered non-suit, and the defendant agreed to take no costs.

Such, we believe, are the striking features of the case, as detailed in the pamphlets before us; exhibiting as extraordinary a collision of opinion and opposition of authority as any on record. As the action rested not less upon the charge of negligence than want of skill, this must be taken into account, as having a stronger bearing on the case than at first view would be supposed.

Dr. WARREN, in his letter, still maintains the opinion he gave at the time of the trial, and endeavours to substantiate it by reference to the anatomy of the parts, and the best authorities on the subject; he very properly declines speaking of the ability or criminality of the defendant, and confines himself to charges made against himself. In this we think he has been successful. Without wishing to enter into the controversy, and disclaiming all feelings of prejudice as regards any of the parties, we may be permitted a few remarks on the medical evidence adduced on both sides. Here, as in almost every trial of which we have seen the record, nothing is more glaring than the incongruity of the medical evidence: we find some eminent practitioners declaring that a dislocation of the thigh exists, whilst others insist that such an injury had never been sustained by the patient. Of these latter, thus giving their evidence in direct opposition, only one

who ever actually examined the patient, declared, that in his opinion, no dislocation existed, but that the injury arose from affection of the muscles, or *some other cause;* whilst we find another witness declaring that probably not one medical man in ten would be able to reduce a dislocation of the hip; and yet such evidence as this was not only admitted, but considered as of sufficient importance to influence a jury.

In this case, both the court and jury appear to have lost sight of a principle of evidence which cannot be too strongly inculcated, particularly in points of legal medicine, that the opinion of one man of acknowledged celebrity and skill, should outweigh a mass of negative testimony delivered by those who are known to be inferior in knowledge and standing.

The presiding judge on this trial, has laid down, in his charge, some excellent opinions, regarding the legal obligations which physicians and surgeons are under, when called to render professional assistance.

"Whoever undertakes to practise physic or surgery, holds out to the public that he possesses a competent degree of medical skill. The measure of skill required is ordinary skill, according to the general state of medical science in the section of country in which he lives. The degree of professional talent which may be expected, will depend much upon the patronage and encouragement by which it may be fostered and elicited. In large and opulent towns and cities, where physicians and surgeons find extensive employment and ample compensation, competition is invited; and the candidates for public favour in these arts are stimulated by the most powerful motives, in their endeavours to attain professional eminence, and are at the same time aided by many facilities not to be found in more secluded and less favoured situations. The highest degree of skill, therefore, is not to be expected in small towns; where there is little competition and fewer motives for exertion, from the comparative want of patronage, and the limited opportunities afforded for professional improvement. Circumstances of this kind are well entitled to engage the consideration of a jury."

ARTICLE XIV.—*An Analysis of Fever.* By CHARLES CALDWELL, M. D., *Professor of the Institutes of Medicine and Clinical Practice in Transylvania University.* Lexington, Ky. 1825. Noticed in our last.

"There are two modes," says a celebrated correspondent, "of improving human knowledge; the one by the exercise of the *knowing*, the other by that of the *reflecting* faculties." Of these, Dr. CALDWELL has selected the reflecting path: he has not aimed the essay before us, at increasing or revising the *facts* upon which our medical doctrines are based, but at reasoning and drawing deductions from them. We are matter-of-fact men; and, in general, attach more value to the increase of our knowledge gained by observation, than to that obtained by reasoning upon the observations of others. Our main ground for this preference is, that we apprehend the domain of medicine to be, at the present moment, undergoing more extension by the former means than by the latter. We are not prepared, indeed, in any degree to place a light value on reasoning in medicine; but believe, with our venerated RUSH, and, in fact, with nearly every medical philosopher, ancient or modern, that they should go hand in hand. Ever since the time of BACON, however, philosophers have been of the opinion, that all *chains* of reasoning, on subjects of natural science, were to be viewed with mistrust, and that nothing should be counted upon with confidence, but brief and direct inferences from fact. To this we

think every physician should be competent; and this circumstance greatly diminishes the value of works professing to consist of arguments exclusively. Besides, as the process of reasoning, to a talented mind, is one of more facility than that of patient and laborious observation, and especially as it flatters self-esteem by a perpetual appeal to, and exclusive reliance on, the proudest and almost the noblest faculty of man, it is of itself apt to run into excess; and the youthful physician is extremely prone, as history has uniformly demonstrated, to satisfy himself with an ample proficiency in the opinions of his teacher, or with the dictates of his own natural powers, to the neglect of the painful and emmet-like accumulation of particular observations. It is in these individual truths, after all, that our science really consists; and it is the true object of theory merely to classify them.

Fever, according to Dr. C., is "a compound disease, made up of morbid affections of all the various sub-systems or tissues belonging to the body. It is, therefore, not literally, but in a higher degree than any other complaint," a *general* disease. It originates in a primary local derangement; *inflammatory, congestive,* or *merely irritative;* and is spread by sympathy to the other organs. It generally, and in the most formidable cases, commences in the mucous membrane of the alimentary canal; but may arise from various other sources, particularly from the serous membranes. It can never be completely formed, unless the resistance of the stomach be overcome; but in what way this takes place, whether he means it must undergo phlogosis, the author does not inform us. *Internal congestion* and a *centripetal action* are necessary to the existence of fever; and the removal of these is a leading indication of the cure. Dr. C. thinks that fevers must always go through their five successive stages, of local morbid impression, access, rigor, excitement, and augmentation of the secretions: and he believes that, when these are not perceptible to ordinary observation, this takes place because they pass with a rapidity which prevents their due appreciation.

On the subject of absorption, alluded to in speaking of the nature of the local impression which produces fevers, Dr. CALDWELL is known to entertain opinions at issue with the whole body of modern experimentalists.

ARTICLE XV.—*Medical and Physical Memoirs.* By CHARLES CALDWELL, M. D., *Professor of the Institutes of Medicine and Clinical Practice, in Transylvania University.* Lexington, 1826. Noticed in our last.

We have nothing to add to our notice of the article on alleged medical irreligion, except that we did not mean to impute to Dr. CALDWELL any *preference* for natural over revealed religion; which we understand he particularly disavows.

A Dissertation in answer to certain Prize Questions, proposed by his Grace the Duke of Holstein Oldenberg, respecting the "Origin, contagion and general philosophy of Yellow Fever, and the practicability of that disease prevailing in high northern latitudes;" with thoughts on its prevention and treatment.— To go into the great yellow fever question, and endeavour to settle that which has exhausted so many quills, and which has been so often thought to have received its quietus, is a task for which we feel by no means prepared. It is therefore entirely out of our present plans to give any extended analysis of this pamphlet. Its perusal has confirmed us in the opinion that we expressed of it at the close of our last number. We regret that the author did not, as he informs us it was his original intention to do, actually present it to the Berlin Medical Society for adjudication. We say this, both

on account of the necessity of furnishing the Europeans more extensively with the great mass of American knowledge and experience on this point, and, in some measure, for the sake of an effect which we apprehend it would have had on the essay itself. Had the author presented it as alluded to, he would probably have thought it necessary to give his facts and references in more detail; and this would form an addition of no slight importance to its usefulness. We are sure that the principal value of his present essay is derived from the undoubted and extremely important facts which it contains, and that it would be incalculably augmented, if their circumstances were more fully recorded and referred to.

With several points on which we should not agree with the eminent author, we apprehend it to be a masterly, though somewhat hasty, review of the *American* doctrines and opinions on this most important subject; and now, that our government is placed in communication with that of France, relative to momentary measures, based on the settlement of these questions, apprehend that Dr. CALDWELL's pamphlet is calculated to be of public service.

Thoughts on the Analogies of Disease.—This is a sketch, in forty-six pages, of several of the leading points of comparison and similarity general among most or all diseases. We think it certainly worthy of an attentive perusal; but it should form a part of an extended course of study, embracing the acquisition of a large amount of facts; after which these principles of generalization will become very useful. That distinction should be constantly borne in mind, which exists between the real acquisition of knowledge, and the mere act of reflecting upon and methodising it. Our author here expands the views he had given in a preceding essay: he tells us, p. 180, that those are *philosophers* and men of a higher order of intellect, who abound in principles, while their store of facts is comparatively limited; and, p. 184, that, from the labours of such as these, "three years' study of medicine now, is equal to four if not five, even as late as about the close of the last century." We apprehend this to be a dangerous error, particularly flattering to the indolent student; that medical minds are to be valued, not in proportion to the number of their principles and the facility with which they are formed, but to their accuracy and the care with which they are based upon, and compared with, the largest accessible amount of facts; that the real use of theories is to *classify* facts, and not to supersede them; and that, finally, the science of medicine is now so widely extended, that the student, however far he may have the advantage of his predecessors, in facilities for acquiring his profession, does not do justice to its present improved condition, without a longer course of study than that generally demanded in this country.

QUARTERLY SUMMARY

OF IMPROVEMENTS IN MEDICINE AND SURGERY.

ANATOMY.

1. *Description of a Deformed Fœtus.* By BENJAMIN ELLIS, M. D.—The deformed fœtus, of the head of which the accompanying plate represents different views, was born in Feb. 1825. No dissection was made of the body; but apparently every other part is perfectly developed.

It is a female child. The mother was a small woman, of very delicate habit, and has since been declining with consumption. The only circumstance that appeared to be peculiar in the labour, was the large quantity of the liquor amnii. The membranes were ruptured before I arrived; but the first information I received from the attendants was, that "a very large quantity of water had come away." I believe the woman was seated on a chair at the time, and the liquor amnii flowed on the floor.

Dr. SHOEMAKER informed me, that in a case which once occurred in his practice, a similar peculiarity followed the rupture of the membranes.

It will be seen by the plate that the upper portions of the bones forming the arch of the scull are deficient. The contained substance appears to be imperfect brain; and the small body represented in the plate as attached by a pedicle is of the same nature.

At one period of the labour, the head remained stationary for some time, and I began to fear there would be a necessity for instruments. This difficulty appeared to be owing to the irregular surface which the imperfect scull presented. I sent at this time for Dr. BOND. Shortly after his arrival, the head began to descend, and the child was soon delivered naturally.

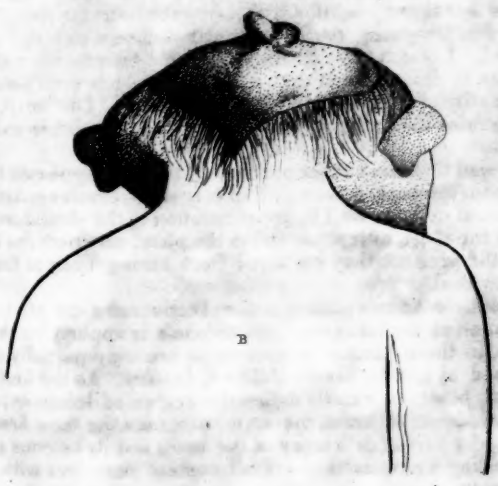
A small quantity of blood flowed from the cord. The heart pulsated for several minutes distinctly, when it ceased, and no other evidence of life appeared.

It was observed that every other part except the head appeared to be perfectly developed; the neck, however, is so very short, that it certainly merits the appellation of deformed. The approximation of the shoulders, and the narrowness of the chest, as represented in the plate, may perhaps be partly attributed to the pressure they sustained from having been at first placed in too small a vessel.

Under the article Anencéphalie, in the Dictionnaire de Médecine, we find a description of similar cases. *Anencéphale* is applied by the writer, M. BRESCHET, to those fœtuses whose crania are only partially deficient. *Acéphale* is used by him to denote children, *headless*. As the first of these terms does not, however, exactly define the degree of deformity, or rather signifies a *total absence* of brain, the writer proposes the term *hémicéphale*, as expressive of a *partial* deficiency of the brain and its osseous envelope.

Without coining a new name, we shall content ourselves with the foregoing statement.

A



B

Drawn by S. G. Morton M.D. *Engraved by C.D. Meigs M.D.*

Children possessing a partial brain, as is the fact in the present case, frequently live after their exit from the uterus. The French work alluded to records several instances where life continued, for a longer or shorter period of time, from an hour to a week. By some writers it is stated, that the number of female children born with this deformity exceeds that of males. In the case described in this paper, as was mentioned, the fœtus was a female. It is stated that the manifestations of the fœtus in utero are always perfectly natural, though the delivery generally takes place before the full period of pregnancy. Whether the female who was the mother of the fœtus in my possession, had arrived at the ordinary period, I am unable to state positively; although such was always my impression.

Various conjectures have been indulged by different physiologists, as to the cause of these mal-formations. By some they have been attributed to the maternal imagination; or to physical causes acting either externally, as blows, falls, &c., or internally, as fluid in the brain, &c.

As these monsters are frequently found in cases of plurality, the presence of so great a mass has been urged as a cause of the imperfect development of one of the children. These observations we have taken from the French Dictionary before mentioned. The essays upon this subject are long, and will be interesting to any one who is curious to inquire into the history of these irregular movements of nature.

2. *Connection of the Sympathetic Nerve with the Seventh Pair.*—This nerve, says Dr. FREDERICK ARNOLD, in his inaugural dissertation, is united with that of the seventh pair, by one or more twigs, coming from a gangliform plexus in the canal of Fallopius, formed by the superficial branch of the vidian nerve, with a twig from the carotid plexus.

At the spot where the branch of the vidian nerve unites with the facial, (portio dura,) there is a ganglion, from which issues, 1. a thread which unites the facial with the auditory, (portio mollis,) and, 2. the chorda tympani; which last, of consequence, is neither formed exclusively by the facial nor by the vidian nerve.—*Bulletin.*

3. *The Serosity of the Spinal Canal,* according to M. MAGENDIE, is not contained in the proper cavity of the spinal arachnoidea; but between the inner fold of that membrane, and the medulla spinalis itself. This observation is confirmed by Dr. DESMOULINS, in his late work, on the "Anatomie des Systèmes nerveux des animaux à vertèbres."—*Ibid.*

4. *Laws of Formation of the Different Lobes of the Brain of Animals.*—Our readers will recollect the mention we have already made of the recent researches of M. SERRES and others, on the formation of those numerous and intricate lobular bodies which seem to replace the brain in the lower vertebral animals, particularly in fishes. Dr. DESMOULINS concludes, from researches of his own, that, excepting the lobes which form the real cerebrum, and those others within the cranium into which no nerves are inserted, all the other cephalic lobes are formed, and, after they are formed, further developed, in exact proportion to the size of the nerves to which they belong; so that these lobes appear to depend entirely upon the nerves to which they are attached. These are [principally] the nerves of the senses; (our readers may recollect the nerves and lobes of *respiration* in fishes, as described by M. FLOURENS. Vide Vol. I. of this Journal, pp. 433, 4.) Hence, from the great variety in the number and development of these nerves, he explains the great diversity in these sensorial bodies. The number of them may vary from three to eight lobes and pairs of lobes.

Dr. D. confirms the opinion of Dr. SERRES, that the different parts of the nervous system cannot, with propriety, be said to be formed, the one

out of the other, but that each is produced separately, and the necessary junctions subsequently made.—*Bulletin.*

5. *Real Hermaphrodism; in a Long-Armed Ape.*—Cases of real hermaphrodism, in man or the other vertebral animals, are so rare, that many physicians have doubted their existence. Every body knows that real hermaphrodites and androgynæ occur among the molluscous animals; some shell-fish being capable of procreating within themselves separately, while others require mutual intercourse, either by pairs, or in a chain of successive individuals, each fecundating, and being fecundated, at the same time. In animals more nearly approaching to our own species, however, the individuals which have been taken for such have eventually, in almost every instance, been ascertained to be deformed males or females, principally the latter.

In the "Bulletin de la Faculté de Médecine," for 1811, p. 176, the celebrated MASCAGNI describes a bull, with all the male organs, and with ovaries, uterus, and vagina; but, in place of a vulva, the vagina had its origin in the urethra. In the Medical Repository, (?) No. 45, a human individual is described, who united both sexes in apparently great perfection. The subject was 21 years of age, was twice pregnant, and underwent abortion at the 3d and 5th months. The testicles and their excretory ducts were not examined anatomically. These instances are taken from the Dictionnaire des Sciences Médicales.

Dr. HARLAN, whose citations we have just been using, has described one in an ape, which he considers a new species, and for which he proposes the name of *Simia concolor*. It is one of that sub-genus known by the name of *Gibbon*, or *Long-armed Ape;* and which has been associated by M. CUVIER, with the Orang-Outangs. The animal was obtained from Borneo; and recently died, in this city, of a very compound affection, including dysentery, diseased mesenteric glands, tubercles of the peritoneum, and gastritis.

The penis was about an inch in length, and subject to erections: it terminated, as usual, in a glans, but was imperforate: a deep groove ran along the inferior surface, serving as a rudimental urethra. The lower third part of this groove was, however, closed by a thin diaphanous membrane; which also extended across the vulva, and completely shut the vagina. The meatus urinarius opened into the vagina, beneath the pubis; so that the urine, when discharged, must have filled the vagina, and then been forced along the groove of the penis by the confining membrane. The vagina was rather large, and presented transverse striæ; and traces of the nymphæ and labia externa were visible. The uterus appeared perfect, with all its appendages, including well-pronounced ovaries, in situ, with minute ova visible in them. The scrotum was divided, consisting of a sac on each side of the labia externa, at the base of the penis, and was covered with hair. The testicles lay beneath the skin of the groin, about two inches from the symphysis pubis, obliquely outwards and upwards: they appeared to be perfectly formed, with the epididymis, &c. The most accurate examination could not discover vesiculæ seminales; but "an opening" into the vagina, above the meatus urinarius, appeared to be the orifice of the vas deferens.

Dr. H. asks, whether the animal, if it had reached mature age, (it was about two years old,) could have been impregnated by the male, after rupturing the membrane which closed the vulva; or whether, as the vasa deferentia terminated within the vagina, the creature could have impregnated itself by masturbation; to which this tribe of beings are so much addicted.—*Journ. Philad. Acad. Nat. Sci. vol. 5.*

II. PHYSIOLOGY.

6. *Suction of the thorax exerted on the venous blood.*—Dr. Barry, in his recent "Experimental Researches on Atmospheric Pressure," has published several experiments on this subject. Tubes were introduced, by mechanism which we have not space to describe, into the pleural and pericardial cavities of several animals; while the outer ends of them were secured to spiral glass tubes, immersed, at their extremities, in coloured water.

In every instance, during *inspiration*, the coloured liquor ascended the spiral glass tubes with great celerity; and during *expiration*, it either remained at rest, or slightly regurgitated. We know not whether it be an exception to this remark to say, that in a tube introduced into the pericardium of a horse, there was an "oscillation" of the fluid upwards during expiration. These experiments were repeated and varied in several ways, and with the same results. When a dog was forced to make peculiarly violent efforts to inspire, by obstructing the trachea, the liquids ascended with greatly augmented rapidity.

When the tubes were introduced into the jugular vein, directed towards the heart, and the vein was tied over them, similar effects were produced.

Having thus demonstrated, that the thorax, during inspiration, exerts a power of suction upon the fluids in the vessels which enter it, (a truth which we confess we considered sufficiently proved from the structure of the thorax, and from its well known motions,) Dr. Barry infers, 1. That the blood which runs contrary to its own gravity, arrives at the heart only during inspiration; and, 2. That the power which thus impels it through the veins is atmospheric pressure. From these he draws several inferences, which we have not sufficient space to copy; but the main object of which is to show, that there must be an accumulation of blood in the venous branches, from the current constantly conveyed into them by the arteries, during expiration; and that the velocity with which the blood returns to the heart is to be estimated, not by the activity of that organ, but by the frequency of respiration.

We apprehend that the principal error existing here consists in the supposition, that, because the blood is proved, during inspiration, to be drawn towards the heart, it follows that this is the *only* power which conveys it there, and these the only moments at which that motion takes place. The thorax, in its state of greatest contraction, is known to *hold the lungs distended*, by removing the atmospheric pressure from their surface; and if this smaller degree of suction co-exist with a protrusion of the blood by a *vis a tergo*, in a nearly equal degree, the effects described by Dr. Barry will take place, and a fluid, placed in communication with the great veins, will remain stationary, neither passing inwards nor outwards: while, at the same time, the blood is actually moving onwards towards the heart. Were this not the case, the heart would be entirely *deprived of its supply of blood* during expiration; and when this is continued for a space exceeding two or three beats, (an experiment easily tried,) the pulse would be arrested, for want of blood to distend the arteries. So inconsequent do these inferences of Dr. Barry appear to us.—*Medico-Chirurg. Review.*

7. *Absorption.*—Dr. Barry concludes, in the work just alluded to, that absorption is conducted by the process of suction just described; that not only do the absorbed fluids, near the heart, pass to that organ in the manner spoken of, but that substances enter their orifices by the same mechanism. And hence he explains the success of cupping-glasses applied to poisoned

wounds. Suction through such long and flexible tubes as the lymphatics, we do not think likely to find many permanent believers.

Dr. BARRY's experiments on the application of cupping-glasses to poisoned wounds, noticed in our number for April last, p. 447, have been repeated before many witnesses, both in England and France. M. LAENNEC, the author of the report there mentioned, speaks of them in the most respectful terms.—*Ibid.*

8. *Phrenology.*—This doctrine has made important and highly creditable converts in England. The Quarterly Phrenological Journal still continues to be regularly published, and appears to be extending its circulation. It is principally filled with exemplifications of various characters from history and fiction, according to the new principles, with essays on the abstract nature of individual faculties, narratives of interesting and curious cases, applications of phrenology to the occurrences of the times, defences of it against the reiterated attacks made upon it, &c. It forms an amusing miscellany, dull, in many parts, to the general reader, but containing, perhaps, quite as large a portion of articles interesting to any individual as the generality of good magazines. Societies are established in several of the towns of the British empire. Dr. ELLIOTSON, the translator of Blumenbach, is president of the London association. Dr. OTTO, a learned physician of Copenhagen, has founded a society there, and published a systematic treatise on the science. Dr. JAMES JOHNSON, the celebrated editor of the Medico-Chirurgical Review, and author of the work on the Influence of Tropical Climates, has taken a bold and decided stand, as a defender of the modern doctrine. The accession of a journal of so high a character, for it has been often spoken of as the first medical periodical in England, must be a triumph and advantage of no mean importance to the cause of phrenology. In the number for last October, just received, there is an elaborate review of the *second edition* of Mr. COMBE's new "System of Phrenology," and of Dr. SPURZHEIM's new work, entitled "Phrenology, in connexion with the study of Physiognomy." Dr. S. is said to be engaged in preparing a work, in which he intends to vindicate those parts of the doctrine and of the anatomical discoveries, which he considers as peculiarly belonging to himself, distinguished from Dr. GALL. This task may interest the public less than the author; but it is an act of justice to his own fame to which that celebrated writer is unquestionably entitled.—*Phrenological Journ.*—*Med. Chir. Review.*

9. *Mode of termination of the nervous fibres.*—Dr. RUDOLPHI, of Berlin, in his new Elements of Physiology, and Messrs. PREVOST and DUMAS, of Paris, have stated that the extremities of the nervous fibrils are not actually continued into the substance of the muscles, vessels, or glands; nor do they present a loose termination, but return into themselves, forming loops, which interlace with the muscular fibres, and form a network round them.—*Bulletin. July.*

10. *Fibres of the Veins.*—Dr. RUDOLPHI confirms the description given by BICHAT, of the entire absence of visible transverse fibres in the coats of the veins, and of the extreme delicacy of the longitudinal ones, which can hardly be put in comparison with the strong, elastic-contractile tunic of the arteries.—*Ibid.*

III. PATHOLOGY.

11. *Vaccination of Animals.*—This operation was practised by M. Gohier, on the hog, cat, rabbit, and domestic fowl. The experiments of Dr. Jenner on the grease of horses, are in the memory of many of our readers; and a Dr. Sacco had also published some experiments of a similar kind. Dr. Numan, professor in the Veterinary School of Utrecht, has applied the vaccine to a number of animals, with the view of studying the results thereby produced; and publishes his observations in a pamphlet.

The vaccine has been repeatedly observed in Holland among persons employed in attending to cows.

In *cows*, three or four insertions were made by our author, in each teat, with matter obtained, either directly from other cows, or from children who had undergone the artificial process. The punctures inflamed; and in three or four days afterwards, the vesicles began to extend, until they had reached their acme; which took place on the eighth or ninth day, yielding unquestionable vaccine matter, possessed of the power of transmitting the disease to the human subject. The vesicles often extended four or five twelfths of an inch in the direction of the length of the wound; (un développement de 4 ou 5 lignes dans le sens de la plaie;) but were frequently smaller. The scab separated on the eighteenth to the twentieth day. In many cows there was no areola; in others a very visible one. This irregularity was, in part, ascribed to the dark colour of many of the teats; which disguised and perhaps often entirely concealed the redness of the inflammation. No eruption was observed either in the vicinity of the punctures, or more remotely. A slight heat was observed in the ears and horns; and some acceleration took place in the circulation. The appetite and rumination were not changed.

The Bull.—Mundigh and Hosacker deny the possibility of communicating the vaccine to the bull; while Bergman asserts its practicability. Viborg communicated it to a buffalo; and Dr. Sacco to young bulls, but could not do the same to old ones. Dr. Numan succeeded in producing a very regular vaccine in the scrotum of a bull, and in communicating the disease from this animal to cows, though he failed in a young child.

The Horse.—It is found by experience, that the vaccine will originate in cows that feed in pastures where there are no horses; so that the opinion which ascribes the origin of this disease to the affection of horses termed "*grease*," must be erroneous. Nevertheless, Viborg found that he could produce vesicles, (boutons,) in the teat of the cow, by inoculation with the matter of "*grease*," (called *mok* in Holland,) not only in the original place of insertion, but around it. Similar trials made in the metatarsus of horses, with the vaccine matter, produced vesicles of a kind closely resembling the ordinary vaccine. Horses never took this affection more than once: and they underwent no perceptible disturbance of their general health.

The Ass.—These animals are subject to the "*grease;*" but inoculation with the matter thus produced, has never effected a real vaccine in cows. When vaccinated themselves, they are affected with more facility than horses, probably owing to the comparative thinness of their skin; and the pus (lymph? the French frequently do not distinguish clearly between *pustules* and *vesicles*) when inserted in the teats of cows, produced more abundant pustules than their own vaccine. The matter of these, again, communicated an analogous disease to horses, and to other cows.

The *vaccino-equine* and *vaccino-asinine* matters did not affect man with as much certainty as the ordinary vaccine matter; and frequently failed

altogether. One crust, however, of *vaccino-equine* matter, but taken from a horse affected with grease, produced a real vaccine which was propagated to a great number of infants.

A *camel* was inoculated with vaccino-equine, and with real vaccine from a child. Both took; the former with some difficulty. On inserting the matter of these into a cow, the former took: and the vesicles formed, served again to produce others in a goat.

In the *goat*, the matter from the camel produced vesicles in the belly, and a few upon the right teat. That from a female ass communicated them to the belly but not to the teat. Some of these, of which species we are not told, communicated vaccine vesicles to a child, at the second inoculation, two insertions being made each time.

Vaccination succeeds in the *sheep;* but it does not preserve them from the rot: this effect may be produced by inoculation with the matter of the rot. They take vaccination with more difficulty than goats. Cows and the human species have never taken the vaccine by inoculation from sheep, though repeated attempts have been made.

Hogs will take vaccination, but not communicate it to our species.

A *baboon*, Papio Nemestrinus, Cuvier, took vaccination; but the vesicles began to diminish on the seventh day. Two insertions of the matter being made in a child, one of them presented a beautiful vaccine.

The reader is referred to Mr. TRAVERS's observations on the inoculation of the human subject with glanders, at pages 97 and 98, of this number. —*Bulletin.*

12. *Small Pox and Varioloid in Milan.*—Dr. STEFANO MORO has published an account of an epidemic of this nature in that city; which we shall not analyse, as our patience and that of our readers is by this time exhausted with listening to the echoes of the same narrative which are rolling "round and around" the world. Dr. MORO's results confirm, in the most ample manner, those of the Scotch observers, and of our own countrymen; and in particular, set in, if possible, a still higher light than ever, the preservative powers of the vaccine, tried in one of the most tremendous visitations perhaps ever known. Of those who were exposed, and who had never been vaccinated, but a small minority escaped the disease; and of those who, thus unprotected, were attacked by the epidemic, *one out of four died.*—*Ibid.*

13. *Small Pox in Paris.*—Messrs. BRUNET, DOUSSIN-DUBREUIL, and CHARMONT, have published, under the auspices of the government, a list, *by name*, of all those who died of the small-pox, during the late visitation of that city; together with notes of all the information they were able to collect, relative to the cases, by calling at the houses. We insert this to show the pains that are taken on such points in some parts of the world.—*Ibid.*

14. *Exanthematous Ophthalmia.*—Described by Mr. WARDROP, in the Edinburgh Medico-Chirurgical Transactions. Characterized by being always accompanied or preceded by some eruptive disease; most commonly by eruptions of the scalp, and those behind the ears of children: these alternate with the affection of the eye. The ophthalmia may follow measles, scarlatina, and the other exanthemata; but usually after a considerable interval of time, and not till some secondary eruption has occurred about the head. The most striking symptom is an excessive intolerance of light: the child cannot hold up his head without difficulty, and if he open his eyes, is dazzled, as if he were looking at the fire, and sheds tears profusely. He generally remains with his face buried in a pillow, or with a handkerchief pressed closely against his eyes. In the *afternoon* there is sometimes a remission sufficient for the patient to see a little. The tears become acrid and irritating, occasioning violent sneezing and scalding of the cheeks, alæ nasi, and

lips, producing inflammation in them, and covering them with pustules and superficial ulcerations. The eyelids are often swelled and marked with superficial veins. Extreme difficulty is experienced in getting a view of any portion of the ball of the eye; it is not without severe pain that the cornea can be exposed, and frequently it is impossible to do it. The redness is not remarkably vivid, and appears composed of a few distinct trunks. In general, one eye is more violently affected than the other, though most commonly both partake.

Constitutional disturbance is generally marked by frequent pulse, white tongue, disordered primæ viæ, tumid abdomen, sallow skin, and emaciation. The disease sometimes continues in its aggravated form for many days and weeks; and in some instances, for months, and even years. The injury sustained by the organ is slight, for such a severe and long continued disease: it consists exclusively of specks, and sometimes ulcerations on the cornea. There is no morbid secretion from the meibomian glands.

The treatment will be noticed under our article "*Therapeutics.*"—*Med. Chir. Review.*

15. *Diphtheritis. Membranous inflammation of angina maligna and croup.*—Dr. Bretonneau, of Tours, the discoverer and original describer of the disease noticed in a former number under the name of Dothinenteria, has made a series of observations, which go to prove an identity between angina maligna and croup. A very destructive epidemic broke out at Tours, in which children appeared to die of croup, and adults of the malignant angina. On examining the throats of those who had died with symptoms of the latter disease, including the grayish mottled appearance and fœtid smell which have been generally considered as indicating gangrene, he found, to his great surprise, *that the mucous membrane was uninjured*, and that what he had taken, in common with perhaps all the physicians of the world, for gangrenous portions of the living tissue, were only *membraniform exudations*. Further examinations satisfied him that the real cases of croup began, and almost universally do begin, in the tonsils or pharynx; where they are *within the reach of remedies capable of arresting the disease!*

Dr. Bretonneau considers this species of inflammation as identical with an affection which has been known by the name of *scorbutic gangrene of the gums*. Our readers will recollect a paper on the gangrenous ulcer of the mouth, as observed at the Children's Asylum, by one of the editors of this work, inserted at the commencement of our second volume. In that paper, a comparison of some extent is made, among the various descriptions given by authors, which have been referred by some to such a scorbutic affection. Whatever may be thought of the descriptions given by other authors, the gangrene of the Children's Asylum can certainly not be deceptive, nor consist merely in a pellicular exudation; as it penetrates to a considerable depth, separates in the usual manner, leaving a cavity, and often produces necrosis of the bone.—Twenty-two dissections were made, for the sole purpose of ascertaining whether the apparent sloughs of the pharynx, in the cases of angina, were really so, or whether they were merely an inorganic effusion of coagulated lymph. The result we have already noticed. Even where the fœtor which existed seemed to almost every one indicative of gangrene, it appears to have been owing to the putrescency of this membranous matter.

The direct evidence on which our investigating author decides that the croup begins in the tonsils or pharynx, is not given in the papers which are lying before us; we are only informed of the fact, upon the authority of Dr. B.'s observations. "In fifty-five subjects, however, of all ages, who

fell victims to the epidemic angina, there appeared but one instance in which the false membrane was confined to the trachea, without any similar exudation in the tonsils or some part of the pharynx. In no case, even of the most malignant nature, was there any thing like gangrene of the parts. Ecchymoses of small extent, and occasionally a slight erosion of those surfaces where the disease had continued longest, were the worst alterations of structure which were met with. In about one case in nine, the concretion extended to the ultimate ramifications of the bronchia; in about one-third of the cases, to the great divisions of the bronchia; and in all the rest, it terminated at various depths within the trachea; the immediate cause of death, in all instances, appearing to be the mechanical obstruction of respiration."

It is sometimes difficult to detect the appearance which precedes the formation of the membrane. It consists, most generally, in irregularly shaped patches of dotted redness, without swelling. There is a very fine vascular injection, with minute ecchymoses, and white interstitial spots, which are the orifices of the mucous follicles. These are best seen with a magnifier. One or more long, narrow, red streaks are often seen running down the pharynx or trachea. On the middle of each of these striæ, a stripe of concrete matter is formed, frequently containing minute bullæ. The edges of the concretion are gradually lost in the neighbouring mucus; and this, though not changed in its appearance, is coagulated, and has lost its viscidity. The union of these bands forms the tube; which is fastened to the membrane by little processes extending into the mucous follicles. If the membrane be detached, the redness increases, a fresh deposition is formed, and the adhesion becomes more close. The diagnosis of *angina diphtheritica* is generally as follows. "Redness and tumefaction of one of the tonsils, seldom of the whole of both; erratic fever, not much developed; then some white spots on the surface of the affected tonsil, produced by the pellicular exudation, and easily detached; enlargement of the lymphatic glands on the sides of the neck; deglutition not very difficult, afterwards still less so; a redness surrounding the concretion, and spreading, sometimes very rapidly, to the velum palati, uvula, pharynx, and opposite tonsil. Most frequently, after this sudden expansion, the progress of the diphtheritic inflammation becomes suspended for a time. The intumescence of the lymphatic glands either subsides or remains stationary, and the fever is scarcely perceptible; but after some days, or, perhaps, only some hours, cough begins, either dry or accompanied by some frothy expectoration, and, soon after, producing a sound resembling barking."

This disease must be distinguished from common cynanche tonsillaris, syphilitic sore throat, scarlatina anginosa, bastard or spasmodic croup, and trachitis. We have not space for the comparison. Suffice it to say, that Dr. B. is of the opinion (the opinion, it is to be recollected, not of a fanciful theorist, but of a dissector) that the false croup, which may disappear in a few hours without any treatment, (angina stridula,) is not spasmodic, but owing to an œdema of the mucous membrane of the larynx; and that he acknowledges a regular inflammation of the trachea and larynx, presenting the ordinary characters of inflammation, and designated, according to the custom of a great number of physicians, by the name of trachitis.

For the simple and decisive *treatment* of diphtheritis, vide article "Therapeutics."—*Med. Chir. Review.*

16. *Mr. King's cases of disease ascribed to spurred rye.*—Our abstract of Mr. KING's paper* has attracted the notice of the editors of ANDERSON's

* Originally published in our respected cotemporary, the New York Medical and Physical Journal.

(London) Quarterly Journal; who have done us the honour to extract it, without, at the same time, mentioning the source from which it was derived. From ANDERSON'S it has been copied or noticed in several of the English journals. A correspondent of the last named work notices a very great resemblance between the disease described by Mr. KING, and the *scorbutic* form of the singular endemic recorded by Dr. LATHAM, as occurring in the General Penitentiary at Milbank. We must confess that the London writer has made a strong parallel; and when he asks on what ground Mr. K.'s cases were referred to the use of spurred rye, we are bound to say, as the authors of the note alluded to, that we do think, on reflection, the evidence defective. We believe it was solely on the ground that the prison was supplied with rye bread, and that ergot was very prevalent at the time among the crops of that grain.

With regard to our inquiry whether the American and English ergot were the same species, (a point certainly of some importance,) we have only to remark that the ergot is now used very extensively throughout the United States, for the purpose of accelerating labours; that we ourselves have seen repeated instances of this practice, as well as trials made with it in amenorrhœa; and, in particular, that we once attended a whole family affected with symptoms of poisoning, (viz. gastro-enteric pain, vomiting and purging, and, in an adult female, pains recurring at short intervals in the small of the back,) from ergot, and that in no instance have we seen or heard of a single case of gangrene or visible tendency to gangrene from its use!! We concluded, both from this circumstance and from the discordant opinions expressed in Europe of its action on the uterine fibres, that there was certainly some mistake in the subject. Some botanist, acquainted with fungi, might, perhaps, ascertain the point.

The writer in the London Journal asks for information on this point from some of its American correspondents; and, as we presume the editors consider us as such, these remarks are at their service.

17. *Case of the expulsion of a pin, after having remained in the bowels for a number of years.*—Dr. CROCKETT, of Lexington, Ky. has communicated to us the following case. Miss N. B., when a child, swallowed a brass pin, about one and a quarter inches long, which produced an occasional feeling of soreness, low in the left hypochondrium. In the month of August, 1823, this female, being eighteen years old, passed the pin during the operation of a drastic purgative, taken while labouring under an attack of bilious fever. Its head and nearly half its shaft were found enveloped in a spherical crust of calcareous matter. Since the expulsion of the pin, the soreness in the side has disappeared.

PRACTICE OF MEDICINE, THERAPEUTICS, AND MATERIA MEDICA.

18. *Vaccination.*—Dr. H. GREGORY, Physician to the Small Pox and Vaccination Hospitals in London, publishes some observations on the practice of vaccination. In this paper, Dr. GREGORY urges among the causes of failure, the use of dry lymph, dull points, and glasses; especially the former. But Dr. GREGORY has never had any experience with the former. He remarks also, "I have ascertained by frequent experiments that lancets, well charged, and kept perfectly cool, will *retain the virus unaltered even in summer for about six hours.*"

Now we earnestly wish, that no diminution of carefulness or fidelity should take place in relation to this most important and precious deposit of boun-

tiful providence; but we could not but be struck with the idea that the virus may last unaltered for six hours. As far as our experience goes, the dry scab is universally used in the United States. Every physician has a crust or two in his pocket book; which also commonly contains two small plates of window glass. A piece of the scab is crushed on one of these plates, and when moistened with water, is applied by means of a puncture, or scratch. Scabs are sent to distant places, and are carried in the pocket for weeks. —Certainly the genuine vaccina has been produced with matter used in this manner; and it has repeatedly *exterminated* the small pox.

Dr. GREGORY insists on the employment of a lancet even sharper than one fit for venesection—but we know that a gentleman here who vaccinates an immense number annually, prefers a *broken* lancet. If the lancet be broken off about one twelfth of an inch from the point, it may be pushed against the cuticle so as to abrade it without the loss of any blood, (which is the most frequent cause of failure, as the blood washes off the virus,) and then some of the dissolved virus is placed and pressed on the scratched part: this practice rarely fails. We have used the scab after keeping it several months; and if carefully watched, the vesicle produced will, in such cases, be found strictly conformable to the character which the true vaccina ought to possess. Dr. GREGORY recommends also that the skin be stretched during the operation, that there should be several punctures arranged in a circle, that the lymph should not be taken after the eighth day, (the fourth and fifth is better,) and also that the subject to be vaccinated should be in perfect health. He keeps up the directions as follows: "See that the child be in good health, and free from any cutaneous affection. Select from a healthy child, lymph of the sixth, seventh or eighth day. Be careful that your lancet be extremely sharp, and if it be broad shouldered so much the better. Let there be a tangible drop at the end of the lancet, and be not satisfied with a mere moistening of the instrument. Let the skin be kept perfectly tense during the time of insertion, by grasping the arm of the child firmly and extending the skin between the thumb and first finger of the left hand. Let the lancet be inserted from above, downwards, and at each fresh insertion dip the point of the lancet in the lymph that remains around the incision *first* made. Make from six to ten punctures in a circular form, enclosing a space about the size of a shilling. At each insertion press the point of the lancet firmly against the lower surface of the wound."—*Lond. Med. and Phys. Journal, Nov.* 1826.

19. *Medical Profession in London and Paris.*—In the London Med. and Phys. Journal for Oct. 1826, it is stated, that the number of physicians (*i. e.* fellows of the Royal College, licentiates, &c.) who practice in London and seven miles round, amounts to 174. The whole population amounts to 1,200,000—one physician for every 7000 souls.

Upwards of 800 members of the Royal College of Surgeons practice in the same capital; and as by the law, all medical officers, whether of the army, navy, or E. India Company, are entitled to practice as surgeons and apothecaries in every part of the British dominions, many of them, say 200, may be added to the list of surgeons; making a total of 1000 practising surgeons, or one to every 1200 inhabitants.

The whole number of apothecaries entitled from various sources to practice as such, probably equals 2000, or one apothecary for every 600 inhabitants.

Thus, in London, the physicians are to the surgeons as one to six, to the apothecaries as one to twelve, and to both united as one to eighteen.

In Paris, there were in 1822, 600 physicians; being, on a population of

800,000, one physician to every 1,333 inhabitants, or five times more than in London.

In the same year there were in Paris 128 surgeons, being one to 6250 inhabitants, or four-fifths less than in London.

Taking the three branches of the medical profession in Paris, and supposing the distribution of them in that capital to be the proper standard—viz. 600 physicians, 128 surgeons, and 181 apothecaries, they are together about 900, or at the rate of one to every 900 inhabitants; whilst in London, if the computation of 174 physicians, 1000 surgeons, 2000 apothecaries, and 300 chemists and druggists, be correct, the total number is 3474, or at the rate of one to every 345 inhabitants. In Paris, then, under a due distribution of the three branches, the expense of maintaining each individual engaged in the profession, is divided among 900 persons, whilst in London it is shared among 345; the actual expense to each inhabitant of the latter, being nearly treble the expense to each inhabitant of the former city. It is supposed that in Philadelphia there are about 200 physicians, surgeons, and obstetrical practitioners; which, in a population of 150,000, will give one for every 750 inhabitants.

20. *Affection of the Pancreas.*—Dr. JALLAT relates in the Bibl. Med. for June 1826, the case of a girl 23 years of age, who, after having suffered for several years a copious salivation, which indicated a diseased state of the pancreas, became affected with pain in the larynx and trachea; she had cough, afternoon exacerbations of fever, vitiated secretions and excretions, with obstinate constipation.

On the third day of treatment, the patient felt decidedly relieved by the operation of the purgatives she had taken; but the pulse became convulsive, trembling of the limbs came on, and there was a great loss of appetite, with extraordinary redness of the tongue. On the seventh day, after a restless night, considerable vomitings of greenish matters occurred, the head and neck were covered with sweat, the extremities cold and trembling, there were trismus, dyspnœa, abdominal pain, subsultus of the tendons, and diarrhœa; and the patient sunk. On opening the body, the lungs were found wrinkled, but there was no other alteration in the breast. The pancreas was enlarged, and some of its excretory canals were obstructed. The coats of the stomach were *corroded* by a lumbricus, which had penetrated into the abdominal cavity. This case is carelessly drawn up, and perhaps may be regarded as a doubtful example of diagnosis; but such is the rarity of the disease, that it may not be unacceptable, with all its faults, to our readers.—*Journal Universel. July.*

Another case is related from a German journal, in which salivation came on, but was arrested by brandy. This patient died emaciated, and on examination after death, the pancreas was found entirely changed into a hard cartilaginous mass, its duct partly closed, but the other viscera natural.—*Rev. Med. July.*

21. *Bilious Dysentery.*—M. LACHEZE, a physician at Angers, has communicated to the Royal Acad. of Med. the history of an epidemic which prevailed in Sept. and Oct. 1825, in some communes of the department of Maine et Loire. Mr. L. could not discover any cause for the appearance of this epidemic in the topography of the districts where it prevailed: they are generally very salubrious. The symptoms consisted of vomiting of porraceous bile, constant colics, fever, insatiable thirst, frequent bloody stools, and finally prostration.

In less than twenty-five days, out of a population of 300, 250 inhabitants were attacked. The treatment which was successfully administered consisted, 1. of an emetic of ipecacuanha in the commencement of the attack. This always procured prompt relief, by arresting the dysenteric

flux, even when employed a week after the invasion of the disease. Leeches to the anus were required only in a few plethoric individuals. 2d. The emetic was followed by some manna or Tronchin's marmalade, in order to change the nature of the stools; by small emollient injections, (demi-lavements,) &c.

If the pains lasted longer than four or five days, rice water, containing fifteen or twenty drops of wine of opium to the pint, was exhibited; or thridace, (*lactucarium*,) in a dose of six grains in an ounce of syrup of marshmallows. If the flux became chronic, it was combatted by pills of bark, ipecacuanha, and opium. Mr. LACHEZE thought he had some reason to believe this a contagious dysentery.—*Archives Generales. Aout.*

22. *Compression in Erysipelas.*—Our readers are aware that the Baynton method, as it is called, of treating ulcers of the extremities with adhesive strips and rollers, is very successful. The method of compression has been adopted in France in the treatment of erysipelas, scalds, burns, &c. The most admirable results of this practice are recorded in the Archives by M. A. VELPEAU. Erysipelatous affections arising from wounds have yielded most happily to a compress and roller. He cites a case also, given him by M. BRETONNEAU; who, having upset a vessel of boiling water, received its contents on his leg and the upper part of his foot, which parts were blistered by the accident. The pain was intense, and, not finding entire relief by plunging the limb into cold water, he had recourse to his "*accustomed method.*" A roller, six ells in length, was applied, and I had almost no suffering. From this moment I could walk; by the end of the second day the epidermis was *re-applied* to the skin, and I thought I could leave off the bandage: but, at night, I felt a slight smarting at the instep, and in the morning found a small blister precisely at a point where the bandage had been less exactly applied, in consequence of the conformation." This blister disappeared, and the accident was completely terminated in a few days. By the paper of Mr. VELPEAU, it appears, that in a burn of the slightest or first degree, a compressing bandage prevents the development of inflammation; in the second degree, it hinders the occurrence of blisters, or, if not employed sufficiently early to do so, re-attaches the epidermis, and occasions the absorption of the effused serum. In the third degree, it cannot prevent an eschar, but renders the accident less painful, and brings more speedily a favourable termination.—*Archives Gen. July.*

23. *Letter from a physician travelling in Italy.*—The Edinburgh Medical and Surgical Journal for October contains extracts from a letter of a physician travelling in Italy. We extract the following.

"The Roman physicians occupy themselves but little with the doctrines of the north of Italy. HIPPOCRATES and the older authors are still their favourite masters, and some of the medical men are very deeply read in them. Some of the professors set a bright example of industry to their pupils, but I cannot say that there appeared to be much enthusiasm prevailing amongst the latter. The clinical lectures are delivered *extempore* in a room adjoining the ward. At the University, the professors sometimes lecture in Latin, at others in Italian; but the hour is rather curiously disposed of. It is begun and closed by a hasty prayer, and the intermediate space is about equally divided between a Latin dictation, which the pupils transcribe verbatim, and the *extempore* lecture. Some of the hospitals are very large; this is particularly the case with the Santo Spirito; but though there are wards capable of holding more than two or three hundred each, absolutely unoccupied, there are others so crowded as to have three and four rows deep of beds on each side. This is said to be done for economy. The windows are high, and the part which opens small; the wards are consequently badly ventilated. There are admirable conveniences for dissec-

tion, and very good anatomical theatres; but these advantages seem to be rather neglected. The most striking and numerous preparations in their anatomical collections are monsters, aneurisms, which, for the credit of the Roman surgeons, appear to have been treated by the old method of amputation, and the nervous and vascular systems, laboriously but uselessly detached from the other textures. The hospital which, by its construction and neatness, pleased me most, is devoted to diseases of the skin. The house-patients are all from the neighbouring country, the Romans being only admitted as out-patients. The greater number of inmates are children affected with tinea capitis. They are set to work, and paid their earnings on leaving the establishment. The mode of treatment is remarkable. The hairs are plucked out by the roots, by means of pliers resembling blunt bell-hangers' pincers. The children mutually perform this operation for each other, and it requires to be often repeated. When the hairs are removed, the little patients come under the hands of a priest; who, with a razor which he hones afresh for every individual, makes slight incisions all over the scalp, which is suffered to bleed for a considerable time. A simple ointment is then applied to the head, which is habitually covered with a bladder. There are merely simple warm and cold baths in this hospital. The lunatic asylum is only a place of confinement, as no means are made use of to promote a cure. At Rome, I met with but few new medical works. I may mention a short but interesting pamphlet on hydrophobia. The author, who formerly lived at Tivoli, but now resides at Rome, seems nearly to have demonstrated that this most distressing affection is only communicable by the animal in which its origin was spontaneous; and that bites inflicted by those who receive the disease from him, are quite harmless. The author ascribes the disease to the venereal appetite, provoked but not gratified.—*Ed. Med. and Surg. Journal. Oct.* 1826.

24. *Epilepsy.*—Dr. Usher Parsons, of Providence, relates a case of epilepsy, of an obstinate character and long standing, cured by Dr. Mansfield's galvanic treatment. In this case, Dr. Parsons removed the cuticle on the back of the neck by means of a blister about the size of a sixpence, and a similar portion from the inside of the knee. To the sore on the neck he applied a small silver plate, which had a small staple affixed to its lower edge, in which was fastened a conducting wire. The wire was extended down the back into a belt of chamois leather fastened around the waist; it was continued in this belt round the side, until opposite the groin, and thence down the thigh, until it reached, and was attached to, a zinc plate placed over the sore on the knee. Dr. Mansfield's directions are to apply to the sore a small bit of sponge moistened in water, and corresponding to the denuded place in the neck. Over this, a large piece of the same size as the metallic plate, also moistened, is to be laid, and next to this the plate itself, which must be secured by adhesive straps. The wire down the back should be long enough to permit free motion of the body. The zinc plate at the knee is to be fastened in the same manner; with the exception, that for the second layer of sponge a layer of muscle must be substituted. The apparatus will continue in gentle action from twelve to twenty-four hours; when the sores require cleansing, as well as the plates. Dr. Parsons applied this apparatus to his patient; who discontinued its use after a perseverance in it of six months; and although two years have elapsed, he has not had an epileptic paroxysm since the date of its first application.—*New England Journal of Medicine and Surgery. October.*

25. *Treatment of Exanthematous Ophthalmia.*—We have sketched the accounts of this disease, above, in our article *Pathology*. We here insert the mode of cure.

The ointments, opiates, collyria, &c. commonly used in diseases of the

eye, appear productive of but little benefit; and nothing should be used locally but warm water. The main dependance is on purging with calomel, at first in doses of several grains, and then as an alterative—generally calomel and rhubarb every other night, and jalap or senna the following morning. In the decline of the disease, carbonate of soda and potass, rhubarb, and the bitter infusions, are resorted to. Rigid diet, a light dress, in particular *light coverings to the head*, cutting the hair close, sponging the head with warm water, a succession of blisters behind the ears, or to the back of the neck, antimonial pustules on the scalp, scarifications of the inside of the eyelids, ointment of red precipitate, introduced in very small quantities (diluted?) between the lids, and re-applied, where there are specks or ulcers on the cornea, every four or eight days, form the rest of the treatment. Relapses are prevented by regulating the digestive viscera, and by keeping open a seton or issue about the head.

26. *Treatment of Croup, Angina Maligna, and A. Gangrenosa.*—Our readers will recollect the description of Mr. BRETONNEAU's observations on these diseases, under the article *Diphtheritis*, in Section *Pathology* of the present quarterly summary.

Mr. BRETONNEAU thinks that the real diphtheritic inflammation, or croup, is rarely susceptible of a natural cure, in consequence of the constant tendency of the coriaceous inflammation to spread along the mucous membrane, without leaving the parts originally occupied. This author declares, that, in the form of disease which he describes, he has found that topical treatment in the early stage, and calomel in the succeeding period, were the only means resorted to with any success; and positively asserts, that neither bleeding, leeching, blistering, vomiting, nor purging, were productive of any benefit. Of all external applications, he seems to have given the preference to the hydrochloric or muriatic acid. The following is his mode of applying the remedy.—"This acid, when applied in a concentrated state, to a sound mucous membrane, causes a coriaceous or pellicular inflammation. A slight superficial touch blanches the epithelium, which is detached, and renewed without erosion. But if the action of the acid be prolonged, or its application renewed at short intervals, it produces an ulceration covered by a whitish concretion, which requires a longer or shorter time to cicatrize. It is necessary to be aware of these facts, when we have recourse to this acid with the view of modifying the diphtheritic inflammation; in order that we may not confound the phenomena of the remedial process with those of the disease. *The best plan is to let the first applications be energetic, and not too frequently repeated.* Dr. BRETONNEAU has tried various modes of applying the acid to the pharynx and tonsils, and the following is that which he prefers. A piece of fine sponge is to be securely fixed on the end of a flexible whalebone probang, which is to be bent to a convenient form by heating and softening it in warm water. The sponge is to be dipped in the concentrated acid, and then gently pressed, so as to be left just moistened with the fluid. This precaution is necessary, lest, in the convulsive movements of the palate, some acid should be diffused beyond the parts designed to be cauterised. By these means, it is easy to apply the acid; and its strength can be graduated by various proportions of honey. When thus diluted, it spreads beyond the part with which the sponge first comes in contact, and is only to be used in this manner when the diphtheritic inflammation has gone beyond the reach of the eye, in its progress downwards.

The first effect of this topical treatment, is to give the incipient inflammation a graver aspect. The concretions appear to be thickened and more extended. In 24 hours, the action of the acid will have reached its utmost boundary. If the concretions do not now appear to have extended, or if they are becoming detached, we may prognosticate that the specific in-

flammation is already modified, and the topical application need only be made at lengthened intervals, and of a weaker power. For the cases illustrative of this mode of treatment, we must refer to the work itself. It will be sufficiently obvious that this practice can only apply, with any prospect of advantage, to the diphtheritic inflammation in the mouth and fauces. When the exudation has spread into the larynx and trachea, it is, of course, beyond the reach of sponge and acid. Some other mode of treating the disease must then be pursued.

Mr. BRETONNEAU resorted several times to fumigations of hydrochloric acid, when the diphtheritis had extended to the mucous membrane of the larynx, and it was no longer possible to apply to it the concentrated acid. This plan, however, is not recommended by him; for although he cured five out of six patients, on whom the experiment was tried, the sixth was evidently injured by it; and Mr. B. found in calomel, a resource equally efficacious and much less hazardous. He, however, adds, "There are circumstances, (very rare it is true,) where the calomel itself may prove a poison; and in such cases, it would, perhaps, be better to try the acid fumigations than to abandon the patient to inevitable death."

He directs the calomel to be given in doses of one or two grains every hour, mixed with sugar, and placed on the tongue. In this manner, the mercury acts topically, as well as constitutionally and on the digestive organs. Nor does he neglect mercurial frictions, his object being to bring the system under the effects of mercury as soon as possible.

Our readers will perhaps recollect, that, in the first volume of this Journal, p. 219, we called their attention to the method of treating croup proposed by Mr. MACKENSIE, of Glasgow, as well as to this gentleman's views respecting the formation and extent of the croupal membrane. They will now perceive the remarkable coincidence of views, as well theoretical as practical, between Mr. B. and the Scotch physician. To the former, the credit of priority is doubtless due; since the first chapter of his work was read before the Academy of Medicine in the year 1821, five years before the publication of Mr. MACKENSIE's paper. The only difference between them in point of practice, is, that Mr. BRETONNEAU uses hydrochloric acid, and Mr. MACKENSIE the lunar caustic. Dr. JOHNSON, from whose esteemed Review the substance of this article has been drawn, grounding his opinion on the facts that Mr. GUERSENT "had long previously to Mr. MACKENSIE's publication, given an outline of Mr. B.'s pathology and practice in the new Dictionary of Medicine, under the articles *Angine Couenneuse* and *Croup*," and that Mr. M. is intimately acquainted with the continental writings, thinks he must not only be deprived of the claim to priority; but that some will be induced to suspect that he "could hardly be ignorant of the doctrine and therapeutics of Dr. BRETONNEAU, at the time he published his paper in the Edinburgh Medical and Surgical Journal.

27. *Endermic Medication.*—In the second volume, p. 176, of this Journal, we offered an interesting case of chronic abdominal inflammation, (extracted from the Archives Générales, for March, 1826,) in which Mr. DUBOURG, of the Hospital de la Pitié, had resorted to the acetate of morphia applied to the denuded cutis. This practice seems to occupy, at the present time, a more considerable share of the attention of French physicians than it had formerly done; and it now appears that Mr. DUBOURG is not entitled to the credit of having first resorted to it in Paris. At a meeting of the Academy of Medicine, held on the twenty-third of May last, Mr. ADELON read a report on a memoir on this subject by Mr. LESIEUR, physician at Franconville, by which it is plainly seen that the author resorted to this plan long before Mr. DUBOURG. "In his memoir he (Mr. LESIEUR) first indicates the manner of depriving a portion of the skin of its epidermis, in

order to have a surface capable of absorbing the remedies; these means are vesications, the choice of which is immaterial, if the patient be little irritable, and if the disease treated will be benefited by a revulsion: in the contrary case, it is necessary to select those that act but slowly and cause little pain, as the blistering taffetas, the bark of the daphne gnidium. Care must be taken to remove the vesicating substance as soon as the vesicle is formed, if we wish to prevent the absorption of its molecules, and the subsequent internal excitation. In order to act more promptly, a piece of cotton, dipped in sulphuric acid and inflamed, or in boiling water, liquid ammonia, or concentrated acetic acid, may be employed, or else a small wound may be made with a bistoury." The place is unimportant. M. Lesieur next exposes the manner of keeping the surface, destined for the absorption of the remedy, in a necessary state of denudation. He recommends the substance to be applied only at the centre or circumference of the denuded surface, or else to combine it with the epispastic ointment employed in the dressing, or with cerate or gelatine, if it be capable of exciting a copious suppuration. "At each dressing, the residue of the substance must be carefully removed, as well as the albuminous membranes which are so frequently formed on cutaneous surfaces in a state of suppuration. He has never seen cutaneous inflammation supervene; if it should occur, it ought to be treated by means of topical remedies and emollient baths." In another part of his memoir, Mr. L. treats of the mode of application of the substance. He recommends one or two mediate applications to be made, with a view of accustoming gradually the derma to the contact of the substance, and thus preventing pain: and after these immediate applications are to be resorted to, and if the substance employed be solid and in powder, it must be sprinkled over the surface. If it be in form of extract or conserve, it must be used as an ointment. This must be particularly observed, if the substance be very active in a small bulk. If it be liquid, a piece of lint must be soaked in it, and applied to the denuded surface, or else it must be used in form of bath. If gaseous, it would be necessary to have a vessel armed with two stop-cocks: the one to form a vacuum in the vessel, and the other through which to introduce the substance employed.

The following, according to Mr. L., are the advantages resulting from this mode of medication:—1. It can always be employed when the others are contra-indicated. 2. It obviates the necessity of the topical action of remedies on the digestive tube, which is sometimes affected and diseased by it. 3. The patient is spared the disgust excited by medicine in the senses of taste and smell. 4. It affords the means of using remedies without the knowledge of the patient. 5. It allows us to graduate at pleasure the effect of the remedy, since we have the power of removing it. 6. To produce more sudden effects. 7. To employ substances in the smallest possible doses. 8. To prevent the effects of the digestive, and consequently decomposing action of the stomach upon them. 9. Finally, it furnishes us with a means of discovering which, in each substance, is the active principle; since we can examine the substance after its employment, and see which of its elements has been lost. M. L. concludes his memoirs with an account of seventeen very interesting cases which he observed at the Hospital Cochin, at a Maison de Santé, and at the Bicêtre. Of these cases, four were of chronic catarrh, which were cured by means of the acetate of morphia applied in this way; two of phthisis pulmonalis, which were greatly relieved by the same means; one of pleuritic pains, which had resisted the usual remedies, and were also relieved with the acetate. The eighth case was one of intermittent neuralgia of the temporal region, in which the same remedy was successfully employed. The ninth was hemiplegia: strychnine was employed, and produced tetanic symptoms; which were relieved

by substituting the acetate of morphia for the former remedy. M. L. suggests the propriety of treating tetanus by means of this substance applied in this way. In the other cases, M. L. used the sulphate of quinine, musk, tartar emetic and kermes mineral, by means of which he cured intermittent fevers of various types, convulsive coughs, accompanied with a sense of suffocation; he excited diaphoresis, &c. Messrs. ANDRAL, senior, GUENEAU DE MUSSY, DOUBLE, CHOMEL, and SEGALAS, were appointed a committee to make experiments on this mode of administering remedial substances; sufficient proof that the Academy of Medicine of Paris regard this subject worthy of serious attention.

28. *Epilepsy cured by Tartar Emetic ointment.*—M. PEYSSON, whose name has lately often appeared in the French medical periodicals, as the discoverer of the anti-periodical virtues of tartar emetic, has published in the August number of BROUSSAIS's Annales, an interesting case of epilepsy cured by means of tartar emetic ointment.

The patient fell from a height of thirty feet—he did not injure himself much, but was considerably alarmed. Three weeks after this accident, he was affected with ophthalmia, and next with violent cephalalgia, which returned every other day, accompanied with convulsive movements of the muscles of the face and eyes, and a haggard expression of countenance. By the physician who first saw him, he was treated by means of antiphlogistics; which, however, were productive of very little benefit. At the expiration of ten days, he was seized with all the symptoms of epilepsy. These returned several times a day; and were combatted by means of antiphlogistics, anthelmintics, sedatives, antispasmodics, and cinchona, and finally, the usual anti-epileptical remedies were resorted to; but all without any other effect than that of rendering the attacks less violent and frequent, and of shorter duration. At the end of two months from the first attack, his functions, particularly those of the brain, had become much altered; his mind having lost its usual energy. His voluntary muscles were now deprived of all power of contraction. He complained much, when questioned, of pain in the head and stomach. His urine was voided with great difficulty, and his constipation could only be obviated by means of injections.

Under these unpromising circumstances, M. PEYSSON was called in, and prescribed frictions with tartar emetic ointment, to the internal surface of the thighs, legs, &c. Four days after his first visit, Mr. P. found the patient much improved, out of bed, walking with the aid of a stick, answering better to questions put to him. His epileptic attacks had nearly disappeared; and were succeeded only by slight chills, which returned every evening.

The frictions were continued at intervals for one month; four ounces of the ointment were used, and a complete cure was effected, *without the appearance of a single pustule.* This seems to us the most extraordinary feature of the case; for in all trials that have hitherto been made with the ointment of tartarized antimony in epilepsy and other diseases, the cutaneous irritation and the subsequent suppuration appear to have been essential to the cure. Such at least seems to be the inference that should be drawn from the cases published by Dr. CARTER, an account of which will be found in vol. i. p. 221, and vol. ii. p. 415, of this Journal; as well as from the case published by Dr. ANGELOT, and to which Mr. P. refers. But we believe that Mr. P. is inclined to attribute rather too great an influence to the tartar emetic in this and other cases he has published; the relief appears really to have been here surprisingly rapid; and perhaps, on mature reflection, it will be suspected, that the patient was just about getting well when the ointment was used.

In a memoir presented to the Academy of Medicine of Paris, an account of a report upon which, by M. Louyer-Villermay, is contained in the Revue Medicale for August, 1826, M. Peysson has related three more cures of epilepsy, and by the same remedy. He appears to claim the credit of originality respecting the benefit of the external application of tartar emetic; a claim which appears to be fully conceded to him by the reporter. In answer to this, however, it will be sufficient to refer them to the British medical periodicals of the last few years.

29. *On the Use of the Cyanogenated and stupifying Baths, and of the purgative cyanogenated Syrup of* Dr. Paganini.—In the number of the Journal Universel des Sciences Médicales, for July 1826, we find the following remarks respecting the above mentioned remedies.

"In a number of acute diseases, even of an inflammatory nature, the irritation of the nervous system and of the medulla spinalis, plays an important part, and merits a particular attention. Many chronic diseases of the intestinal tube, of the liver, bladder, &c., are only nervous inflammations. The pain is one of the most prominent symptoms. They are but temporarily relieved by bleeding; and even at an advanced period, it may be allowed to think that the tissues have not yet suffered much structural alteration. Opium and acupuncturation are frequently resorted to in such cases with great effect; but Dr. Paganini often prefers to them the new means we have alluded to above. His bath is composed of simple water, in which is thrown, in ordinary cases four ounces of the distilled water of the lauro-cerasus or of the bitter almonds; he increases or diminishes the dose according to the age, and susceptibility of the patient, acuteness of the disease, &c. In order to render the bath still more stupifying, he adds some hyoscyamus, cicuta, and particularly some datura stramonium. In some cases he uses one ounce of their extract; at others, four pounds of their decoction. In others again, when the indication seems to require it, he prefers their active alkaline principles.

The cyanogenated purgative syrup, which he remarks is particularly well adapted to the treatment of chronic inflammations of the intestinal tubes, consists in the addition of three ounces of the emulsion of bitter almonds, and six drops of distilled cyanogenated water, to one pound of cold syrup prepared with six drams of the senna leaves. The common dose is from two to six ounces per diem, according to circumstances.

This physician relates cases of paraplegia, of gastro-entero-peritonitis, which he calls nervous, of angiotitis simulating aneurism, of prosopalgia, &c., in which these means appear to have been successful."

Without pretending to adopt or reject all the pathological views contained in the above extract, we are disposed to think that the means recommended by Dr. Paganini, in the diseases enumerated, deserve considerable attention. We do not speak from actual experience with them, but from analogy; having prescribed, in such cases, the prussic acid with the most decided success. One of our patients was affected with gastralgia, and had suffered exceedingly for many months, and made use of many of the remedies commonly resorted to in dyspepsia. She was completely cured in a few weeks, by means of the acid; and has now enjoyed excellent health more than three years. Other cases have since fallen under our notice; and we were informed some time ago, by our intelligent and experienced friend Dr. Thos. T. Hewson, that he had been equally successful with the acid in many cases of the same complaint. Another of our patients had suffered nearly eighteen months under prosopalgia, or tic douloureux of the face, which had baffled all the usual remedies. He had been only momentarily relieved by acupuncturation; prussic acid, continued for several months, and pushed to pretty large doses, may be said to have cured him, as he now

only occasionally complains of a dull and *slight* pain in the part. We have likewise prescribed it in several cases of pains in the intestinal canal, which appeared to us to be of a purely nervous character, and unconnected with much inflammatory action. In one or two of these instances, the pain was very severe, had continued long, and resisted the most commonly successful plans of treatment. It gave way to a persevering use of the acid, aided by a light and nutritious diet. Nor was the acid less successful in a case of morbid watchfulness of long standing, which came under our care some time ago.

As we are in the habit of prescribing the prussic acid more frequently than most physicians, and of noting carefully its effects on the system, we shall on some future occasion enter more fully into the subject than is compatible with the limits of this article.

30. *Aloes in Hæmorrhoids.*—Extract of a letter from Dr. CROCKETT, of Lexington, Kentucky. "Strange as it may appear, I am fully persuaded, that aloes, when properly administered, is the best remedy that can be employed in piles. It has been for a long time the principal remedy used in this disease, by Dr. RICHARD PINDELL, formerly of Hagerstown, Maryland, but for many years a successful practitioner of Lexington.

"After the bowels have been evacuated, and the inflammatory action reduced, he administers the following tincture:—

R. Alöes socotorinæ,
Seminum Anisi, aa ℥ij.

"Reduce to fine powder, and infuse in a quart of French brandy for forty-eight hours, frequently shaking the tincture. Of this, the dose is from one-third to half a wine-glass, repeated two or three times a day, so as to produce several soft stools, and to be continued until the patient is entirely relieved.

"As this practice may by some be deemed paradoxical, I will state what I conceive to be the modus operandi of aloes in hæmorrhoidal affections. No doubt, a very fruitful source of mischief from aloes in such affections is to be found in the frequent administration, in domestic practice, of the various kinds of aloetic pills vended in the shops as patent medicines. As these become very hard by keeping, it is easy to conceive, that they may pass through the greater part of the alimentary canal, without undergoing much change; but at last, becoming softened and dissolved, they may be supposed to expend the whole of their stimulating effects upon the lower portions of the tube, and more especially the rectum. On the other hand, when the medicine is given in the liquid form, its operation commences much higher up, and acts more generally, throughout the whole alimentary canal, without producing local irritation in the neighbourhood of the hæmorrhoidal vessels. In addition to this view of the subject, it will be recollected that carminatives possess, to a certain extent, an anodyne quality, which enables them, when combined with purgatives, to lessen the irritation created by the latter.

"From the trials which have been made with this tincture, it may be considered as not only a safe, but very efficacious remedy. It is well known and admitted by many of the most scrupulous, that there are a few prescriptions or combinations of medicines, which, though sometimes accidentally, have been termed *lucky*, because they seem to be so precisely adapted to the purposes for which they were intended; and such, I feel well assured, is the tincture which is here recommended. Indeed its good effects have been so general, that I am almost induced to attribute to it a specific action in hæmorrhoidal affections."

31. *On the efficacy of Tartar Emetic in Mercurial Affections of the Mouth.*—The following extract of a letter from Dr. J. B. FINLAY, of the state of

Ohio, will, we believe, be read with interest; as any thing that promises to be of service in cases of severe mercurial affections of the mouth, must be viewed, in consequence of the sufferings of the patient, as entitled to the attention of practitioners. It is not many years since we were informed, through the medium of our respected cotemporary, the Philadelphia Journal of the Medical and Physical Sciences, that Dr. FIELD, of Virginia, had derived great utility from *emetics* in cases similar to those alluded to by Dr. FINLAY; and although emetics when administered with a view of *puking*, may not act *precisely* in the same manner on the system as tartar emetic given merely as a *sedative*, (if indeed the remedy can be said to effect this desired object,) yet we are inclined to think, that the coincidence here pointed out argues much in favour of Dr. FINLAY's plan, as in Dr. FIELD's method there must be nausea before and after the vomiting. But although conceding thus much, we must confess our inability to reconcile the statement of Drs. FIELD and FINLAY, with that of Drs. CHAPMAN, KLAPP, EBERLE, and other practitioners of this city, who have in general found that vomiting, or nauseating doses of emetic substances, favour the quick appearance of salivation, even in individuals little susceptible to the specific impression of mercury.

Extract of a letter from Dr. JAS. B. FINLAY of Bainbridge, Ohio, to Mr. FINLAY, student of medicine in this city, and communicated to the editors of this Journal by the latter gentleman.

"Some time last winter, in conversation with my partner Dr. CARPENTER, on the subject of our successful use of tartarised antimony, according to Dr. BALFOUR's plan, in cases of inflammation and irritation which had come under our care, the thought struck me, that it might prove efficacious also in cases of *mercurial* irritation, and I suggested it by way of query to my companion, who agreed with me in opinion. Not long afterwards, the first case of mercurial sore mouth that occurred in our practice happening in the hands of Dr. CARPENTER, he gave the lately suggested remedy a trial; and gratified me by announcing a complete triumph in the result. Since that time, we have had many opportunities of repeating the test of this powerful sedative in similar cases; and the result in all, confirms our implicit confidence in it. Our manner of exhibiting it is in doses of one-sixth to one-tenth of a grain, in solution, every hour, with a view to a continued mild operation on the skin and bowels, until the cure is effected. In every instance, when thus given, it immediately checks the progress of the disease, in twenty-four hours produces very great relief, and seldom fails in forty-eight hours to remove all complaint of sore mouth and throat. The most chronic case of the disease combatted with the medicine, was one of three months standing, in which the fauces were highly inflamed and ulcerated; the cure was speedy and effectual."

32. *Zona cured by Nitrate of Silver.*—In the last number of this Journal, (p. 416,) we offered an extract from an essay of Mr. ERNEST GEOFFROY, on the efficacy of Nitrate of Silver in Zona or Shingles, published in the April number of the Révue Médicale. We find, in the August number of the same journal, some additional cases in illustration of the success of the same practice. The first was communicated to the author, Mr. LAMBERT, by Mr. SERRES, and the others occurred in the wards of Mr. LISFRANC, surgeon in chief of La Pitié. In the first case, the disease was situated on the back of the left hand, and on the superior, posterior part of the left shoulder. The parts were cauterised on the 22d of April. An hour after the operation, the patient experienced an acute and burning pain; which disappeared in the course of the day. On the 23d, the inflammatory symptoms had subsided, with the exception of a few pustules; whose continuance was ascribed to the neglect of opening them and discharging their contents.

This was now effected, the parts cauterised, and the next day the patient was cured. The eschars were removed in a week, and no marks were left.

In the second case the zona was situated on the thorax; the lunar caustic was applied all over it, by means of a camel's hair pencil, and produced a violent pain, which, however, subsided in the course of ten or twelve minutes. In the evening, the pain of the zona (which at that period had always been worse) was much less severe than on the preceding days. The next day, a few pustules which had resisted the action of the nitrate of silver, were touched separately with it, and on the fifth day the cure was complete. "It is to be remarked," says the author, "that the gastritis which had been developed at the same time with the zona, disappeared together with it."

In the third patient, the zona was situated in the same place as in the preceding case, and was likewise accompanied with symptoms of gastritis. The caustic was applied in the usual manner, and the patient discharged cured, on the sixth day after his admission into the hospital. The gastritis was treated by abstinence from food, lemonade, and rest; and disappeared together with the zona.

33. *Syphilis treated with scruple doses of Calomel.*—Mr. Boyle, surgeon to the Middlesex Infirmary, has described, in the November number of the London Medical and Physical Journal, a few successful cases of syphilis, treated by this method. We here subjoin one of these, in order to point out to our readers the effects of the remedy when used in this way.

"Henry Pitt, ætatis eighteen, a young man of delicate and slight habits, came under my care as a patient of the Middlesex Infirmary, on the seventeenth of June, 1826, for the treatment of a venereal chancre situated behind the corona glandis, superiorly, and a small but painful bubo in the right groin. Had been taking mercurial pills for four days, but the mouth was not affected. *Gave him a scruple of Calomel, with one grain of Opium, at bed time.*

"18th. Mouth sore; chancres evidently improved in appearance; bubo stationary. The bowels had been moved twice in the morning, without griping or uneasiness. 19th. Chancre improving in appearance; state of the mouth and bubo stationary. No medicine. 20th. Chancre healed; mouth more tender; the bubo, however, notwithstanding the early and continued use of the ordinary repellent measures, is larger; the fluctuation of matter is distinct, and the skin in the centre has become thin, is peeling off, and appears about to break.

"*Moxa to be applied round the base of the enlarged glands; followed by the application of adhesive straps over the part.*

"21st. Bubo evidently diminished in size; state of the mouth the same as it was yesterday.

"*Blue pill and antimonial powder, of each two grains, night and morning. The moxa and straps to be continued.*

"22nd. Bubo much reduced, the matter being all absorbed, having a depression in the centre, marking the situation previously occupied by it.—The moxa, straps, and blue pill, were continued till the twenty-eighth; when the patient was discharged."

In the other cases described by Mr. Boyle, the effects of the calomel administered in this manner were still more evident; but we have selected the preceding because it shows, at the same time, the efficacy of moxa in discussing glandular swellings. In most cases, the bowels were not moved by a repetition of the calomel, and calomel or blue pill were administered in combination with the antimonial powder to keep up the specific effect of the mercury.

This practice of treating syphilis by large doses of calomel, is certainly

not new in this country, as it is frequently resorted to by the physicians of our southern States; and has been particularly eulogized by Dr. CARTWRIGHT, of Natchez, as may be seen in the first volume, p. 224, of this Journal. Mr. B. however, seems to deserve the credit of priority; as he laid down the practice in his work on syphilis, printed some years ago; and one of the individuals, whose case is mentioned in the essay before us, is said to have been treated in the same manner for a similar affection in 1822. In those cases, therefore, which will prove intractable *without mercury*, the plan recommended deserves trial.

34. *European Opium.*—At a meeting of the Academy of Medicine, Section of Medicine, held on the thirteenth of June, M. DRONSART read a memoir on the opium made from the papaver growing in France, which he considers as powerful a calmer of the nervous system as the exotic. He cited, in support of his opinion, the experiments made by the late Dr. BOSQUILLON, by professor FOUQUIER, by several English physicians, by M. LOISELEUR DESLONGCHAMPS, as well as some made by himself. M. DRONSART, moreover, maintains that the French opium possesses over the Thebaic the advantage of never producing narcotism. In support of this, he cited the testimony of several physicians and pharmaceutists, and particularly of M. DUBUE, of Rouen, who tried on himself the effects of the French opium. He also brought forward some observations of M. LOISELEUR DESLONGCHAMPS, and some of his own, in which the two opiums having been successfully used on the same patients, it was found that the sleep procured by the French was always exempt from a kind of intoxication and dreaming, which on the contrary accompanied that produced by the Thebaic opium. M. DRONSART announced, that at a succeeding meeting he would explain, by the chemical composition of the two substances, this difference in their action.

Having had the opportunity of seeing the French opium at the store of Mr. Durand, a very intelligent and well informed druggist of this city, we can confidently assert, that at least in appearance it surpasses the Asiatic, being cleaner and more purely gummy. Mr. Durand informs us that many physicians of this city have used it, and prefer it to the other.

35. *Medicinal properties of Madar, and its mode of preparation.*—In the first volume of the Transactions of the Medical and Physical Society of Calcutta, published in 1825, Mr. PLAYFAIR has given a pretty full account of the Madar and its medical uses. This substance is the powdered root of the *Asclepias gigantea* of Lamarck, the A. procera of Willdenow, a species very similar to the Madorius of Rumphius, the A. gigantea of Willdenow. In respect to the manner of preparing the Madar, Mr. PLAYFAIR remarks,

"The roots are dug from a sandy soil in the months of April and May. They are well washed in clear water till every particle of soil is removed; the moisture is then carefully absorbed by wiping with a cloth. Placed in the open air, they are allowed to dry so far, that the milky juice shall in some degree become inspissated, so as not to flow during the subsequent operation. The outside brown crust is then to be scraped off, and the rind left pure and white. The rind is now to be sliced off, or separated from the woody part, and dried for use. When reduced to a powder, it must be preserved in bottles, well corked, as it is apt to attract moisture."

The dose of Madar is five grains twice a day, or three grains three times a day. In some instances, however, the dose has been increased, without any bad effects, to thirty grains in the day.

"The diseases in which Madar has been found beneficial, are various. It acts as a powerful tonic and alterative, as a stimulant and deobstruent, and, combined with opium, as a sudorific.

"It has been given with great advantage in syphilis, in lepra, in cutaneous

eruptions and dropsy, in rheumatism, hectic fever, tabes from glandular obstructions, tape worm, and intermittents. It stimulates the extreme vessels on the surface, and diminishes the velocity of the general circulation. It has been found very efficacious in that species of cancer, so common among the natives of India, called *Lupus*, and in all the varieties of leprosy or elephantiasis. In the horse, it appears effectually to cure the Bursattee, a disease common and destructive in this country; but I am possessed of too little veterinary knowledge to say whether it is a species of Farcy, or a disease peculiar to this climate."

To this, the Reviewer in the Edinburgh Medical and Surgical Journal, (from which we have extracted the above paragraphs,) adds, "Its sensible effects are not very obvious. We, however, observe, that it has at least produced nausea, with considerable heat of stomach, and that it had even been rejected. One patient observed it to have a diuretic effect, but to diminish the alvine discharge; but in another case it seemed to move the bowels. It did not appear to cause an increase of perspiration, nor sensibly to augment the heat of the surface, nor have its effects on the pulse been sufficiently ascertained; but it seemed, where there were ulcers, with passive inflammation, to impart a degree of activity to the small vessels, which led to a decided improvement of the sores."

V. SURGERY.

36. *The Non-Mercurial Practice in Syphilis* appears to receive new advocates almost daily. In addition to the facts already published in this Journal, vol. i. p. 38, and vol. ii. p. 170, we must mention that Dr. Ferdinand Wilhelm Bucher, of Berlin, has published a paper in the Archives für Medizinische Erfahrung, &c. for January and February, 1826, giving a history of the use of Mercury in Syphilis, and recommending its abandonment. Long extracts are published in the October number of the London Repository, which are to be continued. We learn also from the November number of the London Medical and Physical Journal, that Dr. Gunther, of Hamburgh, has made a series of experiments, the results of which differ but little from those which have been obtained by many surgeons in England and this country. "Bleeding, low diet, and perfect rest, were the means principally employed. If the patients were anxious for a rapid cure, mercury was exhibited. In many cases it was found that buboes were dispersed by pressure, even when matter could be distinctly felt in them. In females, chancres healed in from seven to twenty-one days; in men they required from fourteen days to a month."

In further confirmation of these views, we present our readers with an extract of a letter from Dr. Benjamin F. Bache, acting surgeon of the United States' ship Ontario, and late surgeon's mate to the North Carolina; which last vessel sailed from Norfolk, in Virginia, in the spring of 1824, for the Mediterranean station. The letter is dated from the harbour of Smyrna.

"The most frequent complaints I have to combat on board [of the Ontario] are the sequelæ of extensive mercurial courses, resorted to by my predecessor, in syphilitic and other diseases. Very early in our cruise my attention was attracted to this subject, not only from what I had heard Dr. Harris say, recommending the anti-mercurial plan of treating venereal, but principally from observing, in every case on board the North Carolina, the very worst consequences resulting from the employment of mercury to salivation in this climate; it entailing, in every instance but two that I can

recollect, (one of these a case of hepatitis, the other of fever,) disease in some shape, and of a severe character. In fact, so invariably injurious have I found ptyalism here, as entirely to exclude it from my practice. But independently of these considerations, were I to consult my own convenience, I never should resort to mercury in the diseases which would be called venereal that occur here. I have, since my transfer to this ship, had about a dozen cases of chancre and bubo, of which I have a detailed journal, and which have been cured promptly and most perfectly in a time much less than would, ordinarily, be required to induce salivation. So very manageable, indeed, have I found these cases, that I now never put a man upon the list which exempts him from duty, for this disease, so long as it does not affect the glandular system. My plan is simply this: when a man reports himself with simple ulceration of the part, which is *not highly inflamed*, I give him a bottle of "black wash," (calomel and lime water,) with instructions to report any unfavourable change which may occur. During this time he eats the ordinary salt diet of the ship, drinks his half pint of raw rum, (the inordinate allowance in the ration,) and does his ordinary duty in all sorts of weather. I generally have no more trouble; and rarely see the man again unless I take the trouble to inquire for him. If it happen, as it not unfrequently does, that the man has neglected himself until the appearance of buboes, I pursue the same course for the sores; and by two or three repeated blisters I find the swelling readily reduced, even in the last stages. Should the sore be irritable, a solution of the acetate of lead soon brings it into a fit state for the wash. as far as I have seen; although, of course, cases may present which would require some variation of lotions. In the two latter cases, viz. buboes and irritable ulcers, I keep the man at rest, "stop his grog," and furnish him with a light diet. These ulcerations, it is true, are not Hunterian chancres; and in truth, I have not seen one since being in the navy, out of some hundred cases; but I observe they produced with mercury the eczema, which I have often seen, and which was quite as obstinate as the most genuine chancre. This facility of treatment, in the venereal disease, is, I am persuaded, by no means confined to this climate; for I had an opportunity of testing it in a few cases at Norfolk, in diseases which had been contracted in different parts of the Union, and with uniform success. On shore there is much to recommend this plan, if it be as successful in other hands as in mine; but at sea, its advantages are incalculable. In the large proportion of mercurial diseases which I have seen, since leaving home, amounting, I think, to at least fifty in number, I have not been able to resort to the usual course of mercury, from the aforementioned experience. I have, therefore, resorted to murias hydrargyri, in doses of one-sixteenth of a grain thrice a day, continued for three or four weeks, with the decoction of sarsaparilla, ad libitum. There is nothing peculiar in this plan; except, perhaps, the minuteness of the dose, which I adopted after Dr. WASHINGTON, of the North Carolina. I have observed uniformly the most happy effects from this plan; not only in mercurial pains and eruptions, but also in chronic rheumatism from other causes, &c. and in dyspepsia."

37. *Amputation of the Lower Jaw.*—There seem to be no bounds to the bold and even successful experiments of surgeons of modern days. Ligatures to the arteries of the thorax and abdomen, not excepting the aorta; gastrotomy; the extirpation of the cervix, yea, of the whole body, of the uterus; the excision of diseased ovaria; the removal of necrosed ribs; the rooting out of the parotid gland; and now also, the amputation of large portions of the lower maxillary bone; are operations undertaken, and recommended by some of the most scientific, if not the most prudent members of the profession. We shall confine ourselves to a simple record of

facts,* without assuming the responsibility of recommending or discouraging similar enterprises. Let every surgeon, for a moment at least, imagine himself the patient before he resolves to operate.

From the July number of the Archives Generales, we learn, that M. Lisfranc presented to the Section of Surgery, in the name of M. Jensaul of Lyons, a wax model of a carcinomatous tumour affecting the whole left half of the inferior maxillary bone. This portion of the jaw was removed by M. Jensaul, after having secured the common carotid artery on the same side. (The event is not mentioned.) M. Lisfranc observed that a similar operation had been performed by a surgeon, M. Mott, of Philadelphia, (New York,) and moreover, that M. Walther, of Bonn, had removed the *whole* of the inferior maxillary, having previously tied *each* of the common carotids.

In the Edinburgh Medical and Surgical Journal, for October, Mr. Lizars reports another case, in which this terrible operation was performed by himself, for an osteo-sarcoma. The details of the operation and subsequent treatment are given: but, for want of room, we can only mention, that the operation was performed, Aug. 16th, 1826, on a healthy looking man, aged 36 years; that the whole right side of the bone and chin, from the ascending ramus, to the cuspidatus on the left side, was completely removed, that the subsequent symptoms were not severe, and that by the 2nd day of September, (the last date given,) both of the cut ends of the bone had granulated and cicatrized, the aperture in the mouth was reduced to a mere fissure, one-twelfth of an inch in length; the patient experienced no pain, was able to swallow soups, porridge, and minced meats, could sit out of bed, walk about his room, and was regular in his bowels.

38. *Popliteal Aneurism.*—Mr. C. Bell operated, in February last, for a case of popliteal aneurism, presenting the usual characters, excepting that it was situated further down than usual on the popliteal artery. In performing the operation no difficulty was experienced, and Mr. Shaw, who had his hand on the tumour, said "that the pulsation had stopped;" but in a few seconds the pulsation returned, and in half an hour was nearly as distinct as before the operation. The patient remained well until the third day after the operation, when the pulsation in the tumour stopped, and the wound assumed a bad appearance, with the accession of febrile symptoms, cough, and pain in his limbs. He gradually sunk, and died on the sixth day. The whole line of the sartorius muscle had become swollen and tender, with a serous discharge from the wound.

On *Dissection.*—The sartorius muscle was found affected with an erysipelatous inflammation, which had spread along the whole course of its sheath. (?) The muscle itself was swollen, and tumid with serous effusions.

"Just below the part where the profunda was given off, the femoral artery was *divided into two nearly equal branches.* These ran down parallel to each other to the part where the artery passes through the tendon of the triceps muscle: here they re-united: the ligature was found on the more superficial artery, a little above this re-union. The aneurismal tumour and the popliteal artery were filled with coagulated blood; the coagula extended about an inch into the tibial arteries.—*Med. and Phys. Journ. for August.*

39. *Excision of the Ribs and their Cartilages.*—So many bad consequences result from necrosis, exostosis, and other diseases, of the ribs, by which life is not unfrequently destroyed, that surgeons have proposed to lessen these dangers, by completely removing the diseased structure. Some successful

* Vide the former numbers of this Journal; in which most of these operations have been detailed.

operations of this character are now upon record; but as the advantages and disadvantages, the propriety or the impropriety, of this operation, are not sufficiently determined, we insert from ANDERSON'S Quarterly Journal, for October, the following summary of cases, in which excision was successful, under the hands of Dr. CITTADINI, professor of anatomy and surgery in the Royal Hospital of Arezzo.

CASE 1.—F. Laddi had for many years a fungus, resting on the cartilages of the sixth and seventh true and false ribs, about an inch from the ensiform cartilage. In February, 1820, Dr. C. operated, by removing a portion of the cartilages of the two last true, and of the first false rib, at the point of junction. The extent of the disease did not exceed two inches. The hæmorrhage from laceration of the fungus was profuse, but was quickly stopped by the actual cautery. The cure was accomplished in four months, and the disease did not reappear during the time, (two years,) that the patient survived.

CASE 2.—F. Boddi was found by Dr. C., in September, 1822, suffering from a necrosis of the cartilage and bone of the sixth true rib, in consequence of an extensive suppuration from a punctured wound. Having removed a considerable portion of skin, he detached all the muscles covering the carious (necrosed?) part, which was about an inch and a half; and having cut through the cartilage with a blunt-pointed knife, divided the bone with sharp nippers. The pleura was perforated in several places; by which air was admitted and respiration rendered laborious, but in a few hours the latter became natural. The wound healed in two months, and the patient has continued well.

CASE 3.—In January, 1824, Dr. C. operated on A. Cavalucci, who had a fistula, leading to a caries of the cartilages of the sixth and seventh ribs, at their junction with the sternum. Excision was resorted to. The subjacent pleura, which was much thickened, was torn in several places, and the hæmorrhage was considerable. The cure, which was delayed by some fragments of bone, was complete at the end of six months.

CASE 4.—In July, 1824, Dr. C. operated on the third rib, which was carious for the space of an inch, on the upper side of the bone, near its union with the cartilage. By means of a lenticular, the diseased portion of the rib was removed, the lower part being untouched. In three months the patient recovered. In these two cases there was no return of the disease.

40. *Removal of the Os Astragalus.*—Dr. ALEXANDER H. STEVENS, professor of surgery in New York, removed, last summer, the astragalus, after a compound luxation of the ankle joint, otherwise irreducible. The man has recovered, with very trifling deformity of the foot, and with a *flexible joint*. He walks with very slight lameness.—*Extract of a letter to one of the editors.*

41. *Staphyloraphy.*—This operation has, for the first time in this country, been successfully performed, by Professor STEVENS, of the New York College of Physicians and Surgeons. This gentleman has furnished us with the details of the operation and treatment; which, for want of space, we must unwillingly detain for our April number.

42. *Double Inguinal Hernia.*—Mr. HUGH FRASER, of Gibraltar, has communicated to the October number of the Ed. Med. Journ., the case of a stout man, thirty-five years of age, who, on the twenty-sixth of March, 1826, was attacked with the symptoms of an incarcerated inguinal hernia. The patient stated, that he had been twice ruptured, on the same side, within eight months. The operation was performed fourteen hours after strangulation, without opening the sac. The relief was partial, the bowels could not be emptied, and death ensued twenty-seven hours after the operation.

Sectio Cadaveris.—A portion of the ileum, about eight inches from its

termination in the colon, was found strangulated at the inner ring. The sac of this hernia was very dense, and intimately connected with the surrounding parts; so much so, that I was not able, by any force I could apply with the fore-finger in the sac, to protrude it more than half an inch beyond the upper angle of the incision made in the operation, though this incision had been prolonged more than an inch in the direction of the inguinal canal after death. In short, this sac had every appearance of being of long standing. Immediately below the internal ring, or rather the opening of the above described sac, and separated from it by a "*bride*" a line in breadth, the peritoneum formed three or four very loose transverse folds; and the finger could easily be passed up from the wound, on the mesial and central aspect of this hernia, so as to protrude in the abdomen, and raise the loose folds of peritoneum before it. From the facility with which the finger could be here passed into the abdomen, it would appear that the hernia reduced in the operation had obtruded itself at this point, and that the sac containing the portion of ilium had not approached nearer the external ring. The piece of intestine, about three inches in length, lodged in this sac, was not gangrenous, but highly vascular; and the peritoneum all round showed, to a considerable distance above and below the point of strangulation, marks of inflammatory action. The internal ring was about five-eighths of an inch in diameter, and three inches from the external. This was clearly an example of *double rupture*, where both commenced at nearly the same point, and both observed the common dermal relation to the spermatic, and epigastric vessels."

43. *Wound of the Carotid Artery.*—Mr. Travers has recorded, in the London Medical and Physical Journal, for October, a case of a punctured wound of the right external carotid artery, behind the angle of the jaw. The hæmorrhage was profuse and exhausting. Pressure was made by the dresser at St. Thomas's Hospital, until the arrival of Mr. Travers; who endeavoured to discover the bleeding vessel, but unsuccessfully, owing to the depth of the wound, and the injection of the cellular membrane. He then secured the *common carotid artery;* the hæmorrhage ceased in a few seconds, and did not return. The patient was in a previously diseased state, suffering from delirium, &c. The wound only partially united. Inordinate inflammation ensued some weeks afterwards, followed by suppuration in the original wound, by the formation of an aneurismal tumour, and finally, by ulceration, giving rise to secondary hæmorrhage, which proved fatal *ten weeks* after the original accident. *Examination* showed, that a large coagulum had occupied the original seat of injury, and was probably the cause of the inflammation, assisted by the injury inflicted during the ineffectual efforts to secure the wounded vessel. The whole case is very valuable; as demonstrating, that *tying the main artery will be adequate to arrest hæmorrhage from one of its immediate branches*—a fact which is also confirmed, says the reporter of the above case, by a similar instance under the notice of Baron Dupuytren; who successfully tied the popliteal artery, for a hæmorrhage from the posterior tibial artery.

44. *Amputation of the Neck of the Uterus.*—At the sitting of the Section of Surgery, July 13th, a committee examined with great care, a female, on whom M. Lisfranc had, four months previously, performed the operation for amputation of the cervix uteri. They affirmed, that the neck of the uterus had nearly regained its natural conformation: it was only shorter than formerly: nothing indicated a return of the disease.—*Arch. Gen. for August.*

45. *Cancer of the Rectum cured by Excision.*—This operation was performed on the 15th of February, 1826, at the Hospital La Pitié, by Lisfranc. The patient, named Poulain, aged 45 years, was of a good consti-

tution, and in good health, but had suffered from hæmorrhoids for fifteen years; for some months previous, severe lancinating and intermittent pains were experienced, especially at stool. M. Lisfranc, on examination, discovered, that a portion of the rectum, occupying about an inch and a half of the mucous membrane, in height, and in circumference, was in a scirrhous state, and that the part which was inverted by straining presented eminences resembling the tumours at the verge of the anus. As this induration, &c. was attended with lancinating pain, Lisfranc assured the man that an operation was essential. After some ineffectual attempts to invert the diseased surface of the rectum, M. Lisfranc partially succeeded, by inserting into the rectum the index finger of the left hand, in a semiflexed position, and by thus drawing down the part while the patient threw the abdominal muscles into action. He now seized with a pair of strong curved scissors, and towards the verge of the rectum, a part of the tumour, which was incised as deeply as possible, without completely detaching this portion: this could now be more easily seized with the fingers, and by its means, the whole of the diseased part was withdrawn externally. The operation was continued by incisions in a circular direction, so as to remove at once (en masse) the affected tissues. On examination, about half of the sphincter ani was found removed. The hæmorrhage was abundant, but was arrested by filling the rectum with lint, and making pressure with a T bandage. In a few hours the dressings were forced out by severe bearing down efforts, with a return of the hæmorrhage. The tampon was again employed—some fever supervened—and another effort at stool during the night, forced out the lint, with coagula of blood.—No return of the bleeding,—and of course, no renewal of the tampon: no bad symptoms supervened. On the third day, a rectum bougie, of large size, was directed, to prevent the contraction of the rectum; and on the 12th of April the patient left the Hospital perfectly cured. Lisfranc recommended to him the occasional use of the bougie for four or five months. Vide Revue Médicale, for June. Whether the induration was really of a cancerous nature, in the present instance, or the result of simple inflammation, the success of this operation will afford a prospect of relief in cases hitherto regarded as desperate.

46. *Calculus in Females.*—So many unfortunate examples of incontinence of urine have occurred, after the common operation of lithotomy in the female sex, that surgeons have of late years paid more attention to the proposal of dilating the urethra. Many cases have occurred in which this practice has been successful; but the question, whether the dilatation should be made rapidly or slowly, is not yet decided. Both measures are unfortunately painful, giving rise to inflammation, and sometimes to fever; so much so, that Mr. Chevalier has seriously advised the high operation, or incision above the pubis, as superior to either mode. We subjoin the following summary of three cases, illustrative of these observations, taken from Johnson's Review, for October. The two first appeared originally in the Edinburgh Medico-Chirurgical Transactions, vol. ii.; the third in the London Medical Journal, for September.

Case 1.—A stout female entered, at the New Town Infirmary, Edinburgh, under the care of Dr. Hamilton, after having suffered from six to eight years with symptoms of stone. Dr. H. introduced Weiss's dilator, turning the screw two teeth. In an hour much pain was produced, and some drops of blood oozed from the vagina. The screw was turned another point, with increase of suffering, and a further discharge of blood. The dilatation was continued for six hours, until the urethra was three-quarters of an inch in diameter. The stone, however, could not be extracted, although in the grasp of the forceps. The dilatation was resum-

ed, and continued for the night, which was passed in great torture; the diameter of the passage was now one-eighth of an inch more, and the patience of the woman was exhausted. As the stone could not be removed, Dr. H. now introduced a bistoury, and cut, at the angle formed by the junction of the bladder and urethra, upwards and outwards—thus dividing the bridle which prevented the egress of the calculus. No difficulty was now experienced in the extraction, and the patient soon perfectly recovered. The whole dilatation occupied eighteen hours. The stone was four inches and a half in its long circumference, by one and a quarter in its short. From *this* case, Dr. H. would give a preference to the slow dilatation of the urethra, by means of sponge tents, continued for several days.

Case 2.—By Dr. Alexander Ramsay, of Dundee. This was in a lady, 67 years of age, who had been afflicted with symptoms of calculus for twenty or thirty years, and whose constitution had eventually severely sympathized with the local complaint. The vagina was contracted, with some thickening and induration around the urethra, neck of the bladder, and rectum. Two weeks were spent, with very partial success, in dilating the urethra, by means of sponge tents—not without pain. Weiss's dilator was found more useful; and after ten days more the dilatation was sufficient for the extraction of the stone, with some difficulty, and a good deal of pain to the patient. The chief resistance was at the orifice of the urethra. The long circumference of the stone was five and a half inches, by three and a half in the short.

The local inflammation and the constitutional irritation were considerable, but they subsided; the functions of the bladder and urethra were soon restored, and the old lady enjoys good health.

Case 3. was a girl, only sixteen years old, who had, for several years, been complaining of lancinating pains in the bladder, and other symptoms of calculus. She eventually fell under the care of Mr. Chevalier; who commenced dilating the urethra, after having ascertained the actual existence of a stone. The dilatation was difficult, but eventually Mr. C. happily extracted a very rugged calculus, "the nucleus of which was composed of lithate of ammonia and oxalate of lime, surrounded by a mulberry calculus, projecting in noduli of more beauty than kindly qualities." It was more than an inch and a quarter in diameter. At first, the patient had little fever, the urethra had nearly regained its natural dimensions, and the healthy function of the bladder was apparently restored; but bad symptoms ensued—first, incontinence of urine; then a complete retention, until a slough came away; and next, incontinence of urine again occurred. Three months elapsed before her urine could be retained; and a still longer period before she was able to retain more than half a pint of water at one time in the bladder. She at length recovered completely.

VI. MIDWIFERY.

47. *Fatal Placental Presentation.*—In the September number of the London Medical Repository, Mr. James details the case of a female, seven months gone in pregnancy, in whom uterine hæmorrhage occurred, on the twenty-ninth of July, 1826.

Three pints were reported to have been lost—patient was faint—the pulse 90, and firm—os uteri admitted the point of the finger, but nothing unusual could be discovered. Rest, and cold applications were directed, with sulphuric acid and opium every four hours. After the third dose, profuse hæmorrhage followed; and before Mr. James could arrive, the woman was

in a dying state. Finding a large protrusion of the placenta in the vagina, and the os uteri fully dilated, he endeavoured to thrust his finger through the weakest edge of the placenta; but failing in this attempt, he perforated the centre of the mass, seized the feet of the child, and brought them into the vagina. A pain ensued, but was not repeated; and as hæmorrhage followed, the child was extracted by mechanical means. Contraction of the uterus was solicited by the introduction of the hand; pressure was made on the abdominal aorta to lessen the extent of the heart's circulation, but all to no purpose. Life was gone.

In profuse *uterine hæmorrhages*, many expedients have been devised to preserve life. In the last number of this Journal, (p. 438,) we recorded the suggestion of Dr. Mojon of Geneva, to inject cold acidulated fluids into the vessels of the placenta; and we now call attention to a proposal of Dr. James, of making pressure on the abdominal aorta, and also on the vessels of the extremities by tourniquets, until the uterus contracts. "In this way, he observes, the heart, brain, and lungs, would receive an adequate supply of blood, for the sustentation of life." A similar practice was formerly recommended, and not without utility, by Dr. Kelly, in the cold stage of intermittents. We cannot, however, forbear again calling the attention of our European brethren to the administration of the secale cornutum, in cases of hæmorrhage after parturition: the exhibition of which, we confidently believe, would be instrumental in preserving many lives, which would otherwise be inevitably lost.

48. *Prolapsus Uteri.*—Mr. Cloquet communicated, on the sixth of July, to the Section of Surgery, the case of a female aged thirty-six years, the mother of five children, who for three years had suffered from a considerable swelling of the body and the neck of the uterus, with a prolapsus of that organ. The usual means failing, and the patient being thus unable to move, Mr. Cloquet effected a cure by means of pessaries, *cylindrical*, *curved*, and *flattened*, (deprimés) which he terms "elytroids," (élytroïdes,) and which, two years since, he made known to the academy. The uterus resumed its natural place and volume.—*Arch. Gen. Aug.*

49. *Graviditas in Uteri Substantia*, or *Graviditas Interstitialis.*—At p. 464, of the first volume of this Journal, will be found a notice of this variety of extra-uterine pregnancy, as described by Dr. Breschet, of Paris. This eminent physician has read a paper on the subject before the French Academy of Sciences; which has been reported on by the celebrated Geoffroy St. Hilaire; who has ventured an hypothesis on the manner in which this accident occurs, drawn from analogical observations made on oviparous animals. We have no room for the insertion of these views, a notice of which may be seen in the Medico-Chirurgical Review, for October. The following is a summary, presented in the Nouvelle Bibliothèque Médicale, of the cases hitherto recorded.

A case published in 1801, by Schmidt, in the sixth week of gestation.
1811, by Albers—at two months and a half.
1817, by Hederich—three months.
1821, ————————eight months.
1823, by Bellemain—three months.
1825, by Dance—three months.
1825, by Moulin—two months and a half.
1825, by Auvity—one month.

50. *History of a Pregnancy which ended in the discharge of the Fœtus at the Umbilical region, with the subsequent formation of an artificial anus.*—This history was originally drawn up by Dr. Weese, of Thorn, and published in Dr. Rust's magazine. We shall condense the account, as given by Dr. Johnson in the Medico-Chirurgical Review for October; especially as the

accident is very rare, and the peculiar state of exposure in which the intestines remained for years, is perhaps unparalleled. The cavity of the abdomen, among the inhabitants of our western states, and those of the continent of Europe, would seem more patient under accidents and operations, than is usually imagined by American or English surgeons in the larger and more luxurious of their cities.

Garecha, the wife of a Polish peasant near Thorn, now (1825) forty-seven years of age, was, in the year 1807, pregnant of her tenth child. Labour commenced at the expected period, the pains were regular and strong, and the membranes broke early. After violent and repeated efforts, the patient felt something suddenly burst internally, and at the same time there was a small discharge of blood per vaginam. The labour-pains ceased; as also the motions of the child, which had been before very distinct. The tumour of the abdomen, which was very hard, inflamed and suppurated; and through the fistulous orifice, the husband, who was her only surgeon, eventually removed the fœtal remains. At this place, the patient stated that a piece of intestine came through, increased in size, opened and discharged fœces; the discharge per anum diminished as the unnatural outlet enlarged, and after a time entirely ceased.

Dr. Weese examined the part diseased; and observes, that in the middle point of the abdomen, where every trace of the umbilicus is lost, there is a circumscribed, irregular and somewhat circular projection, with sharply defined edges, from between which two separated portions of prolapsed intestine protrude: the greater turns downwards from left to right, resembling an italic *S*. The intestines are of a bright red colour, and the edges of each portion of the intestine appear to have coalesced with the surrounding skin, so that there is no distinct separation between them. The peristaltic motion of the intestine was, on several occasions, distinctly observed by Dr. Weese; and he remarks that the outer coat of the intestine was much altered in texture, so that it appears like the newly formed skin of a cicatrix. The larger piece of intestine measured fourteen inches and six lines (Prussian measure) in length, and the other ten inches; and each was from two to three inches in breadth. They appear to come out of the abdomen at a common opening; and each of them has an orifice large enough to admit a finger; the fæces have here an easy exit, generally in small quantities at a time. The only support or protection afforded to the part is made by folding a piece of *coarse sackcloth* over it, and applying a moderate compress of the same material above. The patient has lived fifteen years under these circumstances, enjoys good health, menstruated regularly up to the preceding year, is able to attend to her domestic duties, and was seen by Dr. Weese digging the ground for potatoes.

VII. CHEMISTRY AND PHARMACY.

51. *Discovery of a new elementary substance, called Brome or Bromine.*—It would appear that a young chemist of the name of Balart has distinguished himself by the discovery of a simple body in the mother waters of sea-salt works. The process for obtaining it is as follows:—Subject these waters to the action of a current of chlorine, until a yellowish-red colour is developed. The colour is owing to liberated bromine, which may be separated by agitation with ether. Treat the etherial solution of bromine with pure potassa, whereby a bromide will be obtained, crystallizing in cubes. Mix this with peroxide of manganese, and distil with a portion of sulphuric

acid: and the bromine will be disengaged, and may be condensed in a receiver.

Properties. Bromine is a reddish liquid, possessing a very strong taste, and the odour of the oxide of chlorine. It corrodes the skin. It does not congeal at zero of Fahr., and boils at 116°. A single drop destroys animals. It "decolorates" indigo and litmus. Its vapour does not support combustion. It is soluble in water, ether, and alcohol. Sulphuric acid has no action on it. It combines with hydrogen, and forms an acid, proposed to be called hydrobromic acid. This acid is decomposed by chlorine, liberating vapours of bromine. When it acts on certain metals, it forms either bromides or hydrobromates.

The memoir of M. Balart was referred to the three most distinguished chemists of France, Gay-Lussac, Vauquelin, and Thenard, and they confirm the reality of the discovery. The discoverer, M. Balart, proposed the name *muride* for the substance; to which name there being several objections, the committee have proposed *brome* (which we render in English *bromine*) from βρωμος, a disagreeable smell.—*Revue Médicale, Aout*, 1826. *Journ. de Chimie Médicale, Sep.* 1826.

52. *Mines of Platinum in Russia.*—It is stated, on the authority of Humboldt, that mines of auriferous platinum have been recently discovered in the Uralian mountains. The ore is said to be so rich, as to have diminished the price of platinum at St. Petersburgh nearly one-third.

53. *Instrument for ascertaining the Presence of Animal Matter in the Atmosphere.*—"Dr. Granville has invented an instrument, which, by means of a preparation of chlorine, enables him to ascertain, not only whether animal matter, in a state of decomposition, be floating in the air, but also the quantity of such animal matter; a knowledge which we cannot attain by the usual apparatus for analyzing atmospheric air, and the importance of which to the medical profession must be obvious. He proposes calling the instrument the *septometer*."—*Lond. Med. and Phys. Journ. Aug.* 1826.

We should be glad to see the details of the construction of the above-mentioned instrument; for we must confess ourselves skeptical as to the possibility, in the present state of science, of determining the conditions of the air above alluded to by any instrument.

54. *Formula for preparing Bichloride of Lime.*—As this chloride, besides its use in bleaching, is of great importance as a disinfector, applicable to the preservation of bodies before burial, or intended for dissection, the restoring of putrid bodies for medico-legal investigations, the correcting the fetor of sinks and privies, and, above all, the disinfecting of hospitals and lazarettos, it may serve a useful purpose to give the formula for its preparation, lately published by Labarraque in the Journal de Chimie Médicale. Place slaked lime, mixed with about a twentieth of common salt, in a tall earthenware pot. Let the beak of the retort containing the materials, be fitted to an opening in the side of the pot, on the same level with its bottom. Disengage the chlorine from a mixture of 576 parts of common salt, and 448 parts of peroxide of manganese, by means of sulphuric acid, diluted with three-fourths of its weight of water. Add the acid by degrees, by means of an S tube.—*Edinb. Med. and Surg. Journ. Oct.* 1826.

In the above account, no reason is given for the mixture of common salt with the lime; neither is it stated what quantity of lime the above mentioned materials will saturate with chlorine. On the first point, we would suggest that the salt may be intended to neutralize any sulphuric acid accidentally driven over, which it will effectually do by its decomposition, giving rise, at the same time, to muriatic acid, which may not be hurtful to the preparation. As to the omission of the proportion of lime, we may remark, that

the proper rule is to continue the disengagement of the chlorine until the lime refuses to absorb any more.

When used as a preservative agent for bodies before burial, in warm weather, it is recommended to dissolve the bichloride in about forty times its weight of water, and pour the solution over the body twice or thrice a day, and keep it over night in coarse linen wrappers steeped in the solution. We have reason to believe that it would be a cheaper and more convenient antiseptic than ice.

We find, by the Bulletin des Sciences Medicales, for July last, that the Society of Marseilles have adjudged a medal to M. LABARRAQUE, for his useful applications of the bichloride of lime to hygieine and practical medicine.

55. *Preservation of Dead Bodies by Injections of Corrosive Sublimate.*—M. LEONARD, Professor of the Military Hospital at Lille, has succeeded completely in preserving the body of a phthisical patient, during very hot weather, by injecting it with a concentrated solution of bichloride of mercury.—*Journ. Univer. des Sciences Med. Juillet*, 1826. This antiseptic expedient is not new.

56. *Analysis of a Black Liquid, vomited in a Cancerous Affection of the Stomach.*—By J. L. LASSAIGNE. The following were ascertained to be its constituents:—

1. A great quantity of water.
2. Free lactic acid.
3. Lactate of ammonia, and lactate of soda.
4. Caseic acid.
5. Osmazome.
6. Albumen.
7. Muriates of soda and potassa, and phosphate of lime.
8. A black matter, analogous to the colouring matter of the blood in an altered state, and to which the colour of the liquid is owing.

"This analysis appears to confirm the opinion of BRESCHET, that the black colour of matter, vomited in certain diseases, is owing to an alteration in the colouring matter of the blood."—*Journ. de Chim. Med.* Sept. 1826; as quoted by the London Med. Repos.

57. *Analysis of a Liquid formed in the Gall-Bladder after death, in a case of Scirrhous Affection of the Pancreas, attended with Jaundice.*—This liquid consisted of

1. Sulphate of ammonia.
2. Albumen.
3. A fatty yellow matter, assuming a crystalline form.
4. A green matter, analogous to chlorophile.
5. Osmazome.
6. Muriate, phosphate, and sulphate of soda.
7. Carbonate and phosphate of lime.
8. Sulphur and oxide of iron.

It therefore appears, that this liquid differed from healthy human bile.—*Journ. de Chim. Med.* Oct. 1826; as quoted by the London Med. Repos.

58. *Matter, causing the yellow colour of the skin in the Icterus of new-born Infants.*—This matter has been proved by M. LASSAIGNE, to differ from bile, in being soluble in alcohol.

59. *Analysis of Bryony Root.*—M. DULONG of Astafort, has lately examined the root of the *Bryonia alba*, which is known to be an active poison, belonging to the order of acrids. He finds it to consist of a poisonous bitter principle, similar to *coloquintin*, or principle of colocynth, associated with abundance of starch. The bitter principle is soluble in water and alcohol, but not in ether, and has no effect on vegetable colours. In this

association of a poisonous soluble principle with starch, the Bryony root resembles the root of the jatropha manihot, from which tapioca and cassada are obtained.—*Journal de Pharmacie*, Mars 1826; as quoted by Edin. Med. and Surg. Journ.

60. *Chemical nature of the different varieties of Fecula, used as diet for the Sick.*—CAVENTOU has recently made some experiments on fecula. This substance is known to be insoluble in cold water, unless when roasted at a few degrees above 212°, or previously converted into a paste with hot water; after either of which treatments, it becomes slightly soluble, and its insolubility cannot be restored. Starch, thus obtained, is considered by CAVENTOU, to be the same as the *Amidin* of M. de SAUSSURE.

Amidin is characterized by giving a deep blue colour with iodine. If long boiled in water, it becomes more soluble, and then strikes a purple colour with the same test. It is considered by CAVENTOU, to owe its existence to the modifying influence of heat upon starch.

CAVENTOU has arrived at the following conclusions, relative to the nature of the chief amylaceous substances used in medicine and cookery:—

Arrow-root is insoluble in cold water; but it forms with hot water a paste, which strikes a blue colour with iodine, and which may be considered as having undergone the alteration, constituting amidin. Arrow-root is, therefore, unmodified fecula.

Sago, being largely soluble in cold water, the solution becoming blue with iodine, is almost wholly amidin, and not fecula. As this substance is insoluble in its natural state, as its extraction by affusion and subsidence sufficiently shows, it must have undergone the process of roasting.

Tapioca is also amidin, almost exclusively, as it is entirely soluble in cold water.

Salep, though generally considered to be a variety of starch, is totally different. It resembles gum tragacanth; as it consists of gum and a vegetable principle, called *bassorin* by BUCHOLZ.—*Ann. de Chim. et de Phys. Avril* 1826; as quoted by Edin. Med. and Surg. Journ.

61. *Acetate of Mercury.*—M. GAROT has written a memoir on the acetate of mercury, with a view to ascertain why KEYSER's pills at one time act mildly, and at other times, in the most violent manner. He has ascertained that there are two mercurial acetates; a protacetate and peracetate, and appears to attribute the occasional violent operation of the pills to the presence of the latter. On the authority of M. ROBIQUET, it is stated, that a partner of KEYSER was in the habit of preparing the acetate by dissolving red precipitate per se in acetic acid. The plan of the late M. VALLEE, former professor of the school of pharmacy, was by double decomposition, between the protonitrate of mercury and acetate of lime.—*Archives Gen. de Med. Juillet* 1826.

62. *Expeditious Method of forming Mercurial Ointment.*—An apothecary, named M. DODELIN, proposes the following process for preparing double mercurial ointment:—Agitate, in a glass vessel, running mercury with fat, liquified at a temperature of 140 degrees Fahrenheit; and afterwards triturate the mixture in a heated iron mortar. M. DODELIN assures us, that, by this process, mercurial ointment is obtained in an hour, of a quality equal to that requiring several days of trituration upon the old plan.—*Arch. Gen. de Med. Juillet*, 1826.

63. *Poppy of the Environs of Paris.*—According to M. DUBLANC, the extract of this plant, like opium, contains morphia, narcotin, meconic acid, and resin; but it does not contain sufficient morphia to render it an advantageous source for this vegetable salifiable base. But while it contains less morphia, it is more abundant in narcotin than opium. According to ORFILA,

four or five grains of the extract are necessary to produce the same excitation as one grain of opium.—*Arch. Gen. de Med Aout.* 1826.

MEDICAL JURISPRUDENCE.

64. *Duration of Human Pregnancy.*—This subject has lately attracted much attention in England, in consequence of an important trial, in which two questions were deeply involved—what was the longest, and what was the shortest period of utero-gestation. In this case, seventeen medical gentlemen were examined; five of whom were of opinion, that the period of human utero-gestation was limited to about nine calendar months, from thirty-nine to forty weeks, or from 270 to 280 days.

On the other side were twelve physicians, who, although agreeing that the above was the usual time of gestation, still maintained the possibility that pregnancy might be protracted to nine and a half, ten, or eleven calendar months.—*Med. Chir. Review. July*, 1826.

This question is certainly one of great importance; as it may involve the honour and happiness of families, the legitimacy of offspring, and the succession of property. It has been agitated for hundreds of years, and yet, like many other physiological questions, still remains in an unsettled state. Nature, undoubtedly, is peculiarly tenacious of uniformity and accuracy in all her operations connected with the propagation of the species; but still is not infallible in her objects, nor invariable in the means of obtaining them.

We agree with Dr. Dewees, that, as there are many causes which may provoke the uterus to contraction a short time before it would take place spontaneously, so there may be others, which may procrastinate this event. Justice requires, that when pregnancy has exceeded the ordinary or legal term, we ought not to presume the illegitimacy of the issue, unless other circumstances warrant this conclusion. But even in admitting this, we are convinced of the truth of Dr. Beck's opinion, that most of the cases of extremely protracted pregnancy, if closely examined, would be found to bear the impress of vice or error.

65. *Infanticide.*—Dr. Brent, of Vienna, has lately proposed a new test as to the vitality of new-born infants, which he considers as infallible.

After attending to the changes which take place in the fœtal circulation the moment the infant breathes, he says, "This hole, (the foramen ovale,) in a child which has never breathed, is exactly in the bottom of the fossa ovalis; but as soon as the child has breathed, the aperture becomes turned towards the right, in some weeks it has ascended very high, and in adult age is found to have arrived at the summit of the oval. In other words, from the moment respiration commences, the aperture of the foramen ovale begins to travel from the lower extremity of the oval hole towards the upper, proceeding from left to right, and the degree of advance it has made becomes an index of the existence and duration of the respiratory process. The same gentleman also attaches much importance to another docimasial test; namely the relative gravity of the lung. Thus, if the lung of a new-born infant, which generally weighs about an ounce and a half, sink in water, he observes how many grains acting over a pulley will just raise it to the surface: this will require about half a drachm. If the lung swim in water, he notices how much it takes to sink it; in lungs of the above mentioned weight it requires about 160 grains to sink them to the bottom. He repeats these experiments with the heart attached to the lungs, and the whole of them a sufficient number of times, to ascertain the relative proportion of

these in an average way; and thus he thinks, we have a steady hydrostatic test of an inflated and fully circulating lung, as compared to that which has never been completely permeated either by blood or air. *Anderson's Quart. Journ. July*, 1826.

66. *Arsenic.*—Dr. CHRISTISON in vol. II. of the Trans. Medico-Chirurg. Soc. of Edinburgh, gives the details of two cases of examination of the contents of the stomachs of persons supposed to have been poisoned with arsenic. In these, he precipitated the arsenic from its solution by means of sulphuretted hydrogen gas: this precipitate was then cautiously introduced into a glass tube, and heated to a full red, when a distinct crust was sublimed, of a smooth bluish gray, and brilliant like polished steel externally, crystalline, sparkling, and iron gray internally, like the fracture of fine steel. This test he thinks decisive; as no other known substance can yield, with sulphuretted hydrogen, a yellow precipitate from which such a metallic crust can be sublimed. In order to establish the nature of the crust precisely, he subjected it to a test of great delicacy and facility of application. The portion of the tube containing the flux being removed, by melting and drawing it out, the crust was driven up and down by the spirit-lamp flame: at first it kept its polish and iron gray colour, but finally was converted into small detached crystals of oxide of arsenic, of a white, translucent, adamantine lustre, with triangular facets.

Where arsenic is dissolved in coloured fluids, it is difficult or impossible to obtain the true precipitates with the liquid tests. Mr. PHILLIPS of London proposes to destroy these colours by means of ivory black: the results of his experiments are striking, and if they are to be depended on in all cases, will tend to remove much of the difficulty always connected with this intricate and delicate operation. He says, to prevent the charcoal having any effect on the nitrate of silver, when used as a test, it should be well washed with boiling distilled water on a filter, till the water gives no sign of muriate of soda.—*Anderson's Quart. Journ.*

QUARTERLY LIST

OF

AMERICAN MEDICAL PUBLICATIONS.

A Treatise on Physiology applied to Pathology. By F. J. V. Broussais, &c. &c. &c. Translated from the French, by John Bell, M. D., &c., and R. La Roche, M. D., &c. Philadelphia. H. C. Carey and I. Lea. 1826. pp 559.

Of the translation of a work, embracing many of the elementary views of the celebrated modern reformer, it is obviously improper to speak; as one of our own number has taken a share in its preparation. It is lawful for us, however, to make known the nature, object, and merits of the original.

We cannot too strongly recommend the present work to the attention of our readers, and indeed of all those who wish to study Physiology, as it ought to be studied, in its application to the science of disease. It has but too frequently been the custom among authors on Physiology, to investigate the functions abstractedly from the agents which modify them; in a word, to study them in a state of health, and to pay little or no attention to the manner in which they may become diseased from the inordinate action of their ordinary stimuli, or how, in their turn, they become the cause of derangement in each other, throughout the body. It is to fulfil this desideratum, that M. Broussais has written the present work; and we may safely say, that he has accomplished his task in a most masterly manner, and thus established his reputation as an excellent physiologist and profound pathologist.

We are aware that such an eulogium will excite a smile in some of our professional brethren; who, totally unacquainted with the writings of Broussais, imagine he has done little else than assert, without due experience, that idiopathic fevers are cases of gastro-enteritis, and affect to treat his opinions as purely theoretical, and unsupported by clinical observations. To such physicians, the only answer we think it necessary to make, is, to advise them to study the doctrine, before they attempt to pass judgment upon it; and particularly to examine carefully the work before us, and the "Histoire des Phlegmasies Chroniques," which we hope soon to see translated into our own language: and if, after doing this, they do not find that Broussais has seen as much disease as the most experienced among them, that, in general, he has reasoned as well as they on what he did see, and that his doctrine consists in something more than the mere enunciation of the gastro-enteritic nature of fevers, and the benefit derived from the application of leeches to the epigastric region, we shall be willing to attach more weight to their criticisms than we are at present disposed to do.

But, although we feel prepared to view the doctrine of Broussais as, on the whole, the soundest, most useful, and most truly physiological of any hitherto offered, we are not disposed to admit *all* his positions on some points of pathology or therapeutics; and such we know to be the sentiment of the translators of the present volume. We intend, in our next number, presenting an analytical review of the work, which was prepared in time for the present, but was crowded out by the great quantity of matter already on hand.

A Treatise on Special and General Anatomy. By William E. Horner, M. D., Adjunct Professor of Anatomy in the University of Pennsylvania. 2 vols. 8vo.

We had procured a notice of this new Anatomy to be written for our pre-

sent number; but it was omitted for want of room. We may be permitted here merely to express our satisfaction at the simple fact of our now possessing two American treatises on this science, arranged and elaborated on different principles; so as, we hope, to encourage a more liberal and extended course of study. We may, perhaps, notice it in our next.

The Druggist's Manual: Being a Price Current of Drugs, Medicines, Paints, Dye-stuffs, Glass, Patent Medicines, &c. With Latin and English Synonyms, a German, French, and Spanish Catalogue of Drugs, Tables of Specific Gravities, &c. &c. and a variety of useful matter. Compiled by direction of the Philadelphia College of Pharmacy. Philadelphia: Printed for the College. 1826.

The New York Medical and Physical Journal, for September. *In exchange.*

The American Medical Recorder, for October. *In exchange.*

The New England Journal of Medicine and Surgery, for October. *In exchange.*

The Philadelphia Journal of the Medical and Physical Sciences, for November. *In exchange.*

The Quebec Medical Journal. "Journal de Médecine," &c. for October. *In exchange.*

We are much gratified with the friendly tone and expressions of approbation with which the Editor of the Quebec Journal has honoured our humble labours: they are so flattering, and so far beyond our possible merits, that we should hesitate in taking them to ourselves, were it not for the very respectable standing which that publication has, at its outset, immediately assumed, and which it so ably and usefully maintains. Of the importance and necessity of a Medical Journal to such a wide and populous territory as Canada, any one can judge; but in the present instance, an additional and peculiar advantage is gained, from what might seem to many a disadvantage. We allude to the obligation under which the Editors lie to make large use of the French language: a language which constitutes, at present, the key to such a vast and important fund of medical knowledge on the continent of Europe.

The Carolina Journal of Medicine and Agriculture.

Boston Medical Intelligencer. Vol. IV. No. 20.

The character of this publication has recently been somewhat changed, and it has now passed into the editorial care of Dr. John G. Coffin, the able translator of a well known work of Bichat, and author of the Essay on the Disadvantages of Interments in Populous Cities. We understand that the Intelligencer has assumed a more popular character; being devoted principally to hygieine, to the discouragement of quackery, and to what Dr. Virey calls the *art of being sick*. At the same time, it is wished to be a medium of preserving scattered accounts of epidemics for the future historian. From the taste and talents of Dr. Coffin, we doubt not its success and extended usefulness.

AMERICAN EDITIONS OF FOREIGN MEDICAL WORKS.

An Inquiry concerning that disturbed state of the Vital Functions, usually denominated Constitutional Irritation. By Benjamin Travers, F. R. S. Senior Surgeon to St. Thomas's Hospital, &c. &c. New York. Published for the Author, by H. Stevenson. 1826.